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FAMILY LYCEUM.

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EVENING ENTERTAINMENTS.

TWELFTH EVENING.

A LETTER which Mr. Oakley had received from a friend in Hampshire, during the day, and which he had read to his family, formed the subject of conversation on the twelfth evening of their amusements. This gentleman had mentioned that a gang of gipsies had taken up their abode in his neighborhood, and had been guilty of many depredations. The children were curious to know the history of a people who have excited that feeling in the bosoms of the wise and the learned.

'This people,' said Mr. Oakley, 'may be classed among the half savage tribes I have already described; but since you wish to be more particularly acquainted with them, they shall be the subject of our discussion for the evening. For although they are but vagabonds, it is curious to examine their usual mode of life.' These words excited still further the curiosity of Mr. Oakley's children, and their expressive countenances betrayed how anxious they were for the promised particulars, which their kind father communicated in the following words:—

The gipsies are called in different countries by different names. In Italy they are denominated *Zingari*, in Spain *Gitanos*, in Germany *Zigeuner*, in France *Bohemiens*, and in England *Gipsies*. They are dispersed over almost the whole surface of the globe, but nowhere have they permanent habitations. In Hungary, Transylvania, Spain, Italy, and other countries, you meet with considerable troops of these vagabonds, who wander from place, never approaching within a certain distance of inhabited places, and retreating into the forests and mountains.

Caroline.—Are there many gipsies in England, papa?

Mr. Oakley.—They are not so numerous by far here as in other countries of Europe. Spain is supposed by some travellers to contain forty thousand, and by others sixty thousand of these vagrants. In France there are not many, from the strictness of the police, which obliges those within that empire to submit to the same civil laws as the rest of the inhabitants. Several of them are at present in her armies; and there is every reason to believe that they will adopt the manners and way of life of their associates. But in other countries, where immense forests and chains of mountains afford secure and permanent retreats to their numerous hordes, the government has not yet been able to make them relinquish their barbarous and disgusting customs, and conform to the laws of the country in which they live.

In summer these people live in the open air, and in winter they bury themselves in deep holes, which they dig in the earth, and cover with a thatched roof in the form of a truncated cone. In Hungary attempts have been made to oblige them to quit these miserable cabins, and to dwell in villages; in consequence of which, some of them have relinquished their strolling way of life; but their numbers have prevented the rigorous enforcement of this reasonable regulation.

The gipsy differs in look from all other nations. His physiognomy and the structure of his head are sufficient to characterize his race. He has a projecting forehead, rather arched than flat; his cheek bones are likewise very prominent; the ears in general are further apart and more pendent than those of other people. He has long black hair, a quick eye, white teeth, and an olive-colored complexion, which some ascribe to filth and the effect of the sun; but it appears, that even without those two causes, his complexion would always have a peculiar hue. For the rest, he is in general active and well proportioned.

The dress of the gipsies is wretched. It consists of a shirt, which is never washed, trowsers of the coarsest woollen cloth, and a large tattered cloak. Their legs are uncovered except in winter, when they put on miserable stockings, or wrap them up in old rags. The dress of the women, which is as unseemly as that of the men, is likewise made up of rags, and a piece of linen, with which they envelope their heads, while one corner falls down over their shoulders. The men always go bareheaded in the most intense heat, as well as in the severest cold.

But although gipsies are accustomed to dress in rags, they are nevertheless extremely fond of finery, especially of glaring colors. When they possess the means, they will procure green and yellow clothes, laced with gold or silver, and parade in this gaudy attire before the country-people. Their children run about naked till they are nine years old; and the manner in which these poor creatures are brought up is truly deplorable. Scarcely is the infant a few weeks old, when the mother fastens it on her back, and takes it with her in all the perigiuations of the horde to which she belongs. At the age of two or three years, the child is obliged to follow her on foot, through woods and along rugged paths, sometimes plentifully supplied with food, and at others destitute of necessaries, and obliged to fast, or be contented with the most wretched fare. He thus becomes habituated to the hard life which he is destined to lead for the remainder of his days. The gipsies might improve their condition, if they would apply themselves to labor and the cultivation of the soil, instead of wandering like vagabonds from place to place; but idleness, the same vice that has reduced to indigence several considerable nations, though inhabiting the most delicious countries, holds them in servile subjection to her ignominious yoke, and prevents their rising from the state of degradation into which they are sunk. For want of the means of procuring wholesome food, they have recourse to the most disgusting fare.—To them the flesh of animals thrown to the dung heap, is a most delicious treat. If a cow, a sheep, or a horse happen to die of disease, the gipsy immediately hastens to the spot to dispute with the rapacious beasts the possession of the horrid booty: they cut up the carcass with extraordinary avidity and address, devour part of it immediately, and carry away the rest and dry it in the sun, or hang it up in the smoke of their cabins.

Do you not here perceive, my dear children, a striking instance of the melancholy consequences of idleness?" Figure to yourself, on the one hand, a number of gipsies covered with rags, with haggard and greedy looks tearing in pieces a half putrid carcass—and on the other, the interior of a town, flourishing from its commerce and the industry of its inhabitants, adorned with all that taste and science have produced to embellish the abode of man, and to make life agreeable. Would you not turn your eyes with disgust from the horrible picture of these wretches, and dwell with complacency on that of happy mortals, enjoying the fruit of their labor, and finding a reward surpassing the troubles which they have taken to deserve it? The one proves to what a degree man may degenerate from his noble origin, if he neglects to exercise the intellectual faculties conferred upon him; the other evinces to what a pitch of splendor society may attain, and what astonishing progress man is capable of making, by means of industry and meditation.

In every country in which gipsies have made their appearance, the inhabitants are obliged to be upon their guard against them, because these vagabonds are everywhere known to be consummate thieves. Parents instruct their own children in the arts of pilfering and cheating, which they oblige them to put in practice before their eyes. But it is not merely to procure the necessaries of life that gipsies steal; they have also artificial wants, which they are determined to gratify at any price. Spirituous liquors and tobacco are two things in which they indulge to excess, and which they endeavor to procure by begging, or, if that method fail, by stealing or cheating. Accordingly they in general haunt the neighborhood of towns and villages, that they may have the more frequent opportunities of exercising their dexterity.

The men in Hungary are principally engaged in selling bad horses, whose defects they conceal with much ingenuity. The women on their part, speculate upon the credulity of the country-people, and strive, in like manner, to live at the expense of those whom they dupe. They go about among the peasants telling fortunes, or selling drugs, which, according to them, are universal specifics against all sorts of diseases, and even mental afflictions. Almost all the young girls play upon some instrument, with which they proceed from house to house: but most commonly these means are employed only to gain access to houses, and more favorable opportunities for stealing. They even go still further in their sordid speculations. Abusing the compassion which people sometimes evince for the offspring of these wretches, they request such as are known in the country for their piety, to stand godfathers or godmothers for children whom they show them, and who have been christened perhaps three or four times in different places, merely for the purpose of obtaining a present. The want of feeling and immorality of these vagrants can excite no other emotion than contempt. They seem to enjoy the spectacle of human sufferings. In Hungary and Transylvania, almost all the executioners are of this nation: they are themselves perfectly indifferent to punishments, and equally insensible to the ignominy attached to them.

In Moldavia, Wallachia, and Transylvania, there are, however, gipsies, who are of a less ferocious disposition than their vagabond brethren. Some employ themselves in washing the sand of the rivers, to extract the gold-dust carried along with it by the current: others display talents for music and poetry, and compose extemporary couplets, which they sing; at the same time playing on some instrument, like the *improvisatori* of Italy. Lastly, in Hungary, several of them follow the occupations of smiths and tinkers; but the bulk of their nation unfortunately continues attached to its ancient manners, and to live without religion or law.

Edward.—Where did this barbarous nation come from, papa?

Mr. Oakley.—That question, my dear boy, has already engaged the attention of many literati, who have made researches into its history; but they have never been able to give a satisfactory solution of it. When they questioned the gipsies themselves respecting their origin and native country, those ignorant and thoughtless people replied that they knew nothing at all about the matter. Some, however, have maintained that they originally came from Egypt; but neither their manners, their physiognomy, nor their language, have any resemblance to those of the Egyptian nation, besides which, they are considered as foreigners in that country itself. As history has not recorded any great emigration, which must have taken place had they been natives of Egypt, it may be inferred that they pass themselves off as such merely to impose upon the multitude; because in many parts the idea of conjuror is attached to the word *Egyptian*, and this appellation gives them some credit and consideration with the ignorant and superstitious. The learned, finding that no information could be obtained from these vagrants, have examined their language with attention.

The gipsies usually speak the language of the country in which they dwell. But with one another they use a language which resembles none of those spoken in Europe, excepting the Hungarian and Wallachian. A thorough knowledge of this tongue has not yet been acquired, because they seem to make a secret of it; but from the insight already obtained, it is presumed to be the same language as was spoken by the ancient inhabitants of India before it was corrupted by foreign invasions.

Hence it has been concluded, with some degree of plausibility, that the gipsies were originally from India, and that they quitted their country prior to those invasions, and settled in Hungary and Wallachia, whence they spread into other countries.

Others suppose them of Indian or Tartar origin; while some of the learned suppose them to be descended from a straggling body of the Huns, which inundated Europe under the command of Attila. I think it is very probable that they may not all be of the same descent. In Spain at least they are considered as the refuse of society, who, preferring a vagabond life, adopt the manners and customs of the gipsies instead of pursuing the ordinary occupations of life.

VALUE OF CATS.—An ancient law of Wales estimated a cat at the price of as much corn as would be sufficient to cover her, if she were suspended by the tail, with her fore feet touching the ground. The price of a kitten, before it could see, was fixed at one penny.

GEOLOGY.

HORNBLEND.

THIS is a mineral, not a rock. The black specks in the Bunker Hill Monument, and in most of the buildings recently erected in Boston, are hornblend. Some of the rocks in almost every town in the Atlantic States, contain a portion, and many a large portion, of the same mineral.

Hornblend is heavy and tough, and is hence difficult to break, as are the rocks of which it composes a part. Its color is usually green or black. It is sometimes found in crystals, which are six-sided prisms, but not regular. These crystals are dispersed through the three rocks just described, viz.: granite, gneiss, and mica slate. When it is found in masses, it has the appearance of a confused crystallization.

The original elements of hornblend are oxigen and silicum (silex), oxigen and aluminum (alumine or clay), oxigen and calcium (lime), oxigen and magnesium (magnesia), oxigen and iron (iron rust), oxigen and manganese (oxid of manganese), and oxigen and hydrogen (water).

GREENSTONE.

This is one of the most abundant rocks in the U. States Two ranges of mountains commencing at 'East and West Rocks,' in New Haven, Ct., are composed to a great extent of greenstone. It is perhaps more abundant within twenty miles of Boston, than any other rock. Those lofty columns on the banks of the Hudson are the same. Most of the elevated summits and precipitous ledges in New Jersey, are greenstone rocks. The grand and picturesque scenery in the vicinity of Edinburgh, Scotland, is produced by the same abundant deposit. The Giant's Causeway, which is among the greatest curiosities in the world, bears a near resemblance in its component parts and structure to some of our greenstone mountains and ledges.

The principal ingredient in greenstone is hornblend; the other is felspar. The two are combined in various proportions, and according to these proportions, with other circumstances, the color of the rock is more or less dark.

As the oxid of iron composes 22 per cent. of hornblend, and of course a large proportion of the rocks of which hornblend is the principal ingredient, greenstone is heavy and hard, and frequently rings when one mass is thrown upon another, resembling bars of iron.

Though greenstone is broken with great difficulty, it is so frequently intersected by seams, and deposited in such regular columns and masses, as to furnish a very convenient material for building.

In New Haven, it is much used for houses, and is almost the only stone in use for cellar walls, wharves, &c.

SIENITE.

This abundant rock is much known by the name of granite, from which it differs in containing hornblend in place of mica, so that sienite is composed of quartz, felspar, and hornblend; sometimes of felspar and hornblend. As hornblend is much harder and heavier than mica, it produces an important change in the character of the rock in which it takes the place of mica; in other words, it renders the properties of sienite very different from those of granite—heavier, harder, and more expensive in working.

Formerly granite, brought from Chelmsford, Mass., Concord, N. H., and Hallowel, Me., was the most common rock in use for building in Boston, and some other cities.—Now, sienite brought from Quincy and Braintree, Mass, are in higher estimation as a building material than any other stone.—The Bunker Hill Monument is composed of it, as are much the greater number of buildings in Boston erected within a year or two past. New York, Philadelphia, New Orleans, and some other cities, have shown their estimation of the same valuable and abundant deposit in Massachusetts, by transporting it for their use. The depositis from which the supplies have already been procured, contain this useful building stone in sufficient quantities for raising a hundred new cities of the size of Boston or New York. Sienite derived its name from Siena,

a town in Egypt, where it is very abundant. Greenstone and sienite are frequently composed of the same two ingredients, and differ only in their proportions. In greenstone the hornblend predominates; the sienite is composed principally of felspar, with a small quantity of hornblend. Quartz is not an essential ingredient in sienite, though in some deposits, like that at Quincy and Braintree, it forms a greater part than the hornblend.

SLATE.

Slates used in schools and for the roofs of houses, are procured from deposits of rocks which are among the most abundant upon our globe. This rock is frequently associated with mica slate, already described, and is generally found with the oldest rocks, but sometimes with those of a more recent formation. When it occurs with granite, gneiss, or mica slate, it overlays them, and is seldom found beneath them.—It sometimes occurs with greenstone, sienite, and limestone.

The strata or layers of common slate are seldom horizontal, commonly oblique, but sometimes vertical.

Various parts of the U. States abound with this rock, and from the several deposits, specimens of various qualities are procured. Some quarries furnish specimens fit for schools, others contain an abundance fitted for roofing houses, and many others contain a coarser material, but useful in various departments of architecture.

It is found in all the Atlantic states, and in Maine, Massachusetts, Pennsylvania, Maryland, and some of the more southern states, it is wrought in quantities as an article of commerce. The greatest quantity of slate, however, used in our cities, is brought from Ireland, or some other part of Europe.

The simple elements in slate, sometimes called argillite, or argillaceous slate, are oxigen, carbon, and hydrogen. The oxigen is combined with six different metals, so as to produce silex, alumine, magnesia, potash, oxid of iron, and oxid of manganese.

Slate being a homogeneous substance, or of a uniform appearance and character throughout, it is called a simple mineral, and placed among the letters of the geological alphabet. As it is found in extensive ledges and deposits, it is of itself a rock, and hence has the two-fold character of a mineral and a rock.

LIME.

This, like the substance just described, is a simple mineral, or a letter in the geological alphabet, and a rock scattered very extensively and in vast deposits over the face of the globe.

Lime appears under a greater variety of color, texture and form, than any other rock. There are probably two hundred varieties of marble, all, or nearly all of which, are lime. Chalk, with the endless and boundless deposits of the more common limestone, is composed of the same elements. It crystalizes into numerous forms. Calcareous spar, with rhombic sides, is one form. A six sided prism is another, and several others might be named.

Lime is less common upon the face of the globe than the rocks before mentioned, especially the three first. It however exists in exhaustless abundance in almost every country. In many places it is the most common and almost the only rock.

No rock perhaps differs so much in its age, or in the periods in which the different deposits were formed. The oldest limestone was formed before the most recent granite. The most recent deposits are at this time accumulating; so that the formation of limestone has been constantly going on for nearly six thousand years at least, so that some specimens are about six thousand years old, and perhaps much more, while others have not completed their first year.

The uses of lime are very numerous and very important. In many places it is the common and only material for the walls of houses, the enclosures of farms, &c., and in every place is esteemed for the finest architectural work. It is the most common material for statuary work, and carving of various kinds.

For the interior walls of houses, or for plastering rooms &c. it is nearly indispensable. Some specimens are of great value for water cements, as they cement the masses of stone in a wall so as to be water tight, and even grow hard under water. This is called hydraulic, or water lime.

Lime when burned, has something of an alkaline property like potash or soda, and is used as a substitute for them. It is used as a flux, or an aid in melting, in the manufactory of the coarser kinds of glass, and in the smelting of iron. It is also used as a medicine.

Upon soils which do not contain a portion of lime, it is a valuable manure. It may be burnt and slacked, or pulverized otherwise and applied to the land. Marl, which is lime commonly mixed with clay and sand, owes its value as a manure to the lime it contains.

The simple elements of lime are fewer in number than those of the rocks before named. The only elements which compose pure limestone, are oxigen, calcium, carbon, and usually a little hydrogen. Burnt lime is little else than oxigen and calcium; lime in the quarry has oxigen and carbon, or carbonic acid with a little water, or oxigen and hydrogen are added. In the process of burning lime, the carbonic acid and water are driven off, so as to reduce it from a carbonate and hydrate, to pure lime, which is oxigen and a metal called calcium.

GYPSUM.

This mineral and rock is nearly allied to the last. It is a salt of lime; not the carbonate, but the sulphate—not lime, carbonic acid and water, but lime, sulphuric acid and water. So that the simple elements of gypsum or plaster of paris, are oxigen, calcium, sulphur and hydrogen. The oxigen however, has three separate combinations, together with a common one,—with the calcium it forms lime; with the sulphur it forms sulphuric acid, and with the hydrogen it forms water. These three combinations again combine into a mass, and form gypsum, plaster of paris, or in the language of chemistry, the sulphate of lime.

This rock is less common and less abundant than either of the others already mentioned; though in many deposits upon the earth, it is inexhaustible. In the neighborhood of Paris, France, are immense deposits, as also in Nova Scotia. Except in some parts of New York, it has not been discovered in great abundance in the American states.

Though valuable for manure, and for some purposes in architecture, its uses are far less numerous or important than the carbonate of lime, or common lime stone. Upon some soils, with certain plants, it acts almost with the power of magic. A single bushel of pulverized gypsum, scattered over an acre of land, has, in many instances, increased the amount of vegetable matter more than the weight of a ton: that is, seventy or eighty pounds of dust apparently powerless and worthless, has increased the weight of valuable vegetable matter, more than two thousand pounds, probably forty or fifty times its own weight.

Clover is most singularly affected by this singular manure. On many barren hills, large crops of clover have been caused to spring up, merely by the dust of plaster of paris scattered over it to the amount of a bushel, or at most two bushels, upon an acre. Thousands and thousands of acres have been rendered almost as white as a fleece of snow, by the flower of the small or white clover, by a quantity of white dust almost too small to be perceived, when spread upon the barren surface it was to change into life and beauty.

Indian corn and potatoes are frequently aided by the application of gypsum, though less sensibly and less certainly than clover.

Upon most soils it has no perceptible effect, and is most powerful upon dry gravelous soils.

Many theories have been formed to show how this apparently inert powder, exerts such a mighty power in aid of the farmer, but none are satisfactory.

THE BIBLE.

Two helps in studying the Bible have just appeared, viz.: 'Lessons on the Old Testament,' by the late Joseph Emerson, of Wethersfield, and 'Letters to Sunday schools,' by Joseph W. Ingraham.

Mr. Emerson's book, consists principally of questions, aided by several maps, which give an outline of scripture Geography, with the most important places mentioned in the Bible. The questions appear to be judiciously selected, and so arranged as to present a clear and connected view of the subjects to which they relate. It must be found a valuable aid to family and Sabbath school instruction.

Mr. Ingraham's book has various scripture illustrations, with several prints to show the manners and usages of eastern nations, and the geography of their country.

BARNUM'S ARITHMETIC.

THE author of a series of school books, has proposed an arithmetic which is not spoilt by the 'picture system' of some other books. It has visible objects enough to acquaint the child with some of the first principles, after which the mind is left to itself to carry out and apply those principles to their appropriate uses. We think it will be found to be a good book.

BOTANY.

INDIAN RUBBER.

THE caoutchouc, elastic gum, or Indian rubber, is obtained chiefly from the siphonia, a genus that possesses but one known species, the *elastica*, a tall tree, indigenous to Guiana, and other parts of South America. It is possessed of the most singular properties: no substance is yet known which is endued in so great a degree with the united powers of flexibility and elasticity; and it is further remarkable, as being capable, notwithstanding its softness, of resisting the action of very active menstrua. Of this extraordinary production very little was known eighty-two years ago. In 1736, M. de la Condamine, who accompanied the delegation of French academicians to South America, to measure a degree of the meridian, sent a paper on the subject of caoutchouc to the French Academy. From his account we learn that the juice oozes out, under the form of a vegetable milk, from incisions made in the tree; and that it is gathered chiefly in the time of rain, because, though it may be collected at all times, it flows then most abundantly. It thickens and hardens gradually on exposure to the air; and as soon as it acquires a solid consistence, it becomes extremely flexible, and elastic. The Indians make boots of it, which water cannot penetrate, and which, when smoked, have the appearance of real leather. Bottles are also made of it, to the necks of which are fastened hollow reeds, so that the liquor contained in them may be squirted through the reeds or pipes by pressure: one of these filled with water is always presented to each of the guests at their entertainments, who never fail to make use of it before eating. Flambeaux are likewise made of this substance; they give a beautiful light, and emit no unpleasant smell; a torch an inch and a half in diameter and two feet long will burn twelve hours. A kind of cloth is also prepared from it, which the inhabitants of Quito apply to the same purpose as our oil-cloth. The form in which it usually comes to us is something resembling bottles; but it will take any other shape that may be desired, by covering moulds of clay with the juice; and as one layer of it becomes dry, adding others until it is of the proper thickness; it is then held over a strong smoke of vegetables on fire, by which it is hardened into the texture and appearance of leather; and before the finishing, while yet soft, it is capable of receiving any impression on the outside, which it afterwards retains. When the whole is done, the inside mould is picked out.

Of the trees yielding this singular substance, those growing along the banks of the Amazons are described by M. Condamine as attaining a very great height; being at the same time perfectly straight, and having no branches except at the top, which is but small, covering usually no more than a circumference of ten feet. Its leaves bear some resemblance to those of the manioc; they are green on the upper part, and white beneath. The seeds are three in number, and contained in a pod, resembling those of the palma Christi: and in each of them there is a kernel, which being stripped and boiled in water produces a thick oil or fat, answering the purposes of butter in the cookery of that country. A similar juice was obtained by M. Poivre some years ago, from a tree in the Isle of France; and various milky juices of nearly the same properties have been extracted from other plants, as the cecropia peltata, the ficus Indica, religiosa, &c.

In the fifth volume of the Asiatic Researches, Mr. Howison has given an account of a tree which he discovered in Prince of Wales's island; and from which he obtained caoutchouc, in almost every respect, exactly similar to that which we receive from America. This tree Mr. Howison denominated the elastic gum vine; but Dr. Roxburgh, who procured specimens of it from Sumatra, and whose botanical description of it appears in the volume just referred to, has classed it under the name of urceola. Those who have not an opportunity of consulting the Asiatic Researches, may find these papers in the Philosophical Magazine, vol. vi. Both these gentlemen have examined this East India plant, its juice, and the caoutchouc formed by it; and they concur in ascertaining its analogy to the American production. Mr. Howison observes that the milk runs but slowly from incisions in the bark, it being full employment for one person to collect a quart in two days. A much more expeditious mode, but ruinous to the vine, is cutting it in lengths of about two feet, and placing under both ends vessels to receive the milk. The best is always procured from the oldest vines; and is often obtained in a consistence equal to thick cream, and which will yield two-thirds of its own weight in caoutchouc. The chemical properties of this milk were found strikingly to resemble those of animal milk. A number of other very curious, particulars, which our limits will not permit us to insert, are detailed in the interesting communications to which we have already referred.

The chemical properties of caoutchouc as far as they have been ascertained, are principally as follow. It is softened by heat, and at length melts, swelling up, and emitting an unpleasant odor: on cooling again, it remains adhesive, acquires the consistence of tar, and never recovers its former elasticity. It yields on distillation carbonic acid gas, hydrogen gas, an empyreumatic oil, and ammonia; the residue is a trifling quantity of coaly matter. It may be dissolved by heat in fat oils, and will combine also with heated wax. Dr. Roxburgh dissolved it in cajeput oil. Exposure to the air does not affect this substance; and it is not soluble in either water or alcohol: but if it be boiled in water, the extraneous matter near its surface is carried off, and two or more pieces of it may then be joined together by mere pressure. It is completely soluble in ether, if the ether be previously washed in water; and as the caoutchouc remains unaltered on the evaporation of the ether, this solution may be employed to form it into any shape desired, though it is too expensive for common use. A more simple method of forming tubes of it is to split a piece of cane, and between the pieces introduce a slip of whalebone: if the caoutchouc be then cut into slips and twisted closely round the cane, and heat be applied, the whole will unite into one piece or tube, from which the whalebone and the cane may easily be separated. Some wind a thread round the caoutchouc, when twisted round the cane, for the purpose of uniting the joinings and apply the heat of boiling water. Caoutchouc is also soluble in rectified petroleum; which, in like manner with ether, leaves it unaltered on evaporation. It has been thought to be insolubie in alkalies; but Dr. Thomson proved the contrary by accidentally dissolving it in ammonial gas. Several of the acids act upon it, as the sulphuric and the nitric; but others do not, as the muriatic. The specific gravity of caoutchouc is 0·9335,

The very ingenious Mr. John Gough of Middleshaw, near Kendal, has made some interesting experiments upon caoutchouc, from which it appears that if a thong of this substance be put into warm water till it becomes quite pliant, and then applied to the lips to estimate its temperature; and if it be then removed, stretched forcibly, and brought again to the lips, while extending; a very sensible increase of temperature will be perceived, which, however, will immediately sink on allowing it to return to its former state. It appears also that if the thong be plunged into cold water immediately upon being stretched and held there, it will be found to have lost much of its contractile power, for it will not on letting go one end return to its former dimensions; but if it be placed in warm water, or held some time in the warm hand, it will re-acquire its elastic properties, thus affording an analogy to the influence of heat in promoting the ductility of metals.

The chief uses to which caoutchouc is applied in this country are, 1st, The rubbing out of black-lead marks, by which it is universally known, and from which its name of Indian rubber is derived. 2d, The formation, by means of turpentine or linseed oil, of a varnish for air ballons. 3dly, It supplies the surgeon with flexible syringes, catheters, and bougies; and the chemist with flexible tubes to gasometers and other apparatus. And, lastly, Mr. Howison has shewn that cloth of all kinds may be made impenetrable to water by impregnating it with the fresh juice; and that boots, gloves, &c. made of cloth thus prepared, which may be joined without sewing, by only moistening the edges with the juice, are more durable and retain their shape better than those made of pure caoutchouc. If more of this juice could be obtained, there is no doubt that it might be applied to a great variety of valuable and important purposes.

There are, however, various other plants, from which the elastic gum may be obtained in smaller quantities, Dr. Barton mentions several in America; and Mr. Woodcock, of Islington, has found it in some of the esclipias genus, especially a vincetoxicum, and a fruticosa.—[*Gallery of Nature and Art.*

THE MOUSE.—This well known little animal is spread over all parts of the globe, and seems to follow the habitations of man, however remote. It is naturally timid, but if laid hold of, will bite keenly

Growth of Timber.

Extract of a letter from Mr. Alexander C. Twining, to the Editor, dated Albany, April 9, 1833.

Dear Sir—I take this opportunity to mention a fact, which I once observed, and which may, perhaps, prove interesting to the readers of your Journal and lovers of natural science. In the year 1827, a large lot of hemloc timber was cut from the northeastern slope of East Rock, near N. Haven, for the purpose of forming a foundation for the wharf which bounds the basin of the Farmington Canal on the East.—While inspecting and measuring that timber, at the time of its delivery, I took particular notice of the successive layers, each of which constitute a year's growth of the tree; and which, in that kind of wood, are very distinct. These layers were of various breadth, indicating a growth five or six times as full in some years as in others, preceding or following. Thus, every tree had preserved a record of the seasons, for the whole period of its growth, whither thirty years or two hundred,—and what is worthy of observation, *every tree told the same story.* Thus if you began at the outer layer of two trees, one young and the other old, and counted back twenty years, if the younger tree indicated, by a full layer, a growing season for that kind of timber, the older tree indicated the same.

My next observation was, that the growing seasons *clustered together* and also the meagre seasons came in companies. Thus, it was rare to find a meagre season immediately preceding or following a season of full growth, but if you commenced in a cluster of thin and meagre layers, and proceeded on, it gradually enlarged and swelled to the maximum, after which a decrease began and went on, until it terminated in a minimum.

A third observation was, that there appeared nothing like *periodicity* in the return of the full years or the meagre, but the clusters alternated at irregular intervals; neither could there be observed, in comparing the clusters, any law by which the number of years was regulated.

I had then before me, therefore, two or three hundred *meteorological tables*, all of them as unerring as nature; and by selecting one tree from the oldest, and sawing out a thin section from its trunk, I might have preserved one of the number to be referred to afterwards. It might have been smoothed on one side by the plane, so as to exhibit its record, to the eye, with all the distinctness and neatness of a drawing. On the opposite side might have been minuted, in indelible writing, the locality of the tree, the year and the month when cut, the soil where it grew, the side and point which faced north, and every other circumstance which can possibly be supposed ever to have the most remote relation to the value of the table in hand. The lover of science will not be backward to incur such trouble, for he knows how often, in the progress of human knowledge, an observation or an experiment has lost its value by the disregard of some circumstance connected with it, which, at the time, was not thought worthy of notice. Lastly, there might be attached to the same section, a written meteorological table compiled from the observations of some scientific person, if such observations had been made in the vicinity. This being done, why in the eye of science, might not this *natural, unerring, graphical* record of seasons past, deserve as careful preservation as a curious mineral or a new form of crystals?

If you should think fit to make such a suggestion, it might lead, in fact, to the preservation of sections from aged trees in different parts of the country, and a comparison of their lines of growth with the history of the weather as far back as our knowledge extends. If the observations just related, with respect to a particular lot of timber should be found to hold true of trees, in general, drawings of these sections on a reduced scale, would soon find their way to the pages of scientific journals. It would be interesting, then to make comparisons of one with another,—to compare the sections of one kind of tree with that of another kind from the same locality,—or to compare sections of the same kind of tree from different parts of the country. Such a comparison would elicit a mass of facts, both with respect to the progress of the seasons, and their relation to the growth of timber, and might prove, hereafter, the means of carrying back our knowledge of the seasons, through a period coeval with the age of the oldest forest trees, and in regions of country where scientific observation has never yet penetrated, nor a civilized population dwelt.—[*Journal of Science & Art.*

METEOROLOGICAL TABLE,

JULY, 1833. — KEPT BY M. J****S.

Dys.	Thermometer. Av.	8h.	12h.	5h.	Winds.	Weather.
1	82	80	84	81	s'ly.	Clear, ● ecl.
2	81	76	85	83	"	Do.; rain,&c.
3	68	70	67	68	NW	Rain; clear.
4	67	66	70	66	SW	Clear.
5	69	63	70	73	NW	Do.
6	72	68	75	74	"	Do.
7	74	70	76	76	NW to SE	Do.; rain,&c.
8	78	74	81	80	SE to W	Do.; cloudy.
9	75	75	76	74	w'ly.	Cly. showers.
10	72	67	74	74	SW	Clear.
11	73	64	75	79	"	Do.
12	77	72	78	80	N to SW	Do.
13	80	73	80	87	"	Do.
14	83	80	85	83	SW	Do.; hard rn.
15	76	74	76	78	NW	Do.
16	67	69	69	73	W to SW	Do.
17	71	70	73	74	NE to NW	Showers.
18	71	67	71	74	NW	Clear.
19	69	66	71	71	"	Do.
20	74	69	78	76	SW	Shower,clear
21	75	71	76	77	SE	Clear.
22	84	77	86	88	S	Do.
23	78	76	79	80	SE	Do.
24	83	77	83	88	SW to NW	Rain, thund'r
25	73	74	73	72	SE	Cloudy, rain.
26	73	70	74	75	SW	Clear.
27	77	72	79	80	"	Do.
28	82	78	83	85	NW	Do.; wind.
29	73	70	72	76	"	Do.
30	77	76	78	76	NW to SW	Rainy all day
31	70	67	70	73	"	Clear.

New Hope Academy, *Bucks' Co., Pa., Aug. 1st, 1833.*

Mr. Holbrook:

In compliance with requests made in some of the early numbers of the Lyceum, I send you a Meteorological Table, kept by one of my pupils during the month of July.

Soon after I commenced taking the Lyceum, I purchased your larger collection of minerals; since which time our cabinet has more than doubled. Most of the additions have been made by my pupils, some of whom take a deep interest in searching for specimens. I have no doubt, that if the Lyceum were taken or used by scholars generally, the character of many of our schools would be improved very much. I am sure it has been a means of increasing a taste for the study of the works of nature among my own pupils; and hope that many other schools may reap that advantage from it which it is so admirably calculated to afford.

Yours, W. M. Hough.

THE LYCEUM.

OUR NEXT VOLUME.

This number closes the first volume of the Lyceum; and from the great number who have renewed their subscription, we hope that our labors have been satisfactory to our patrons. Though our success has not been all that we could wish, it has been more than we could expect. The experiment of one year has satisfied us on several points. We are fully satisfied, of what we indeed never had but little doubt, that a regular treatise on almost any science or other subject of useful knowledge, may be given through the medium of a weekly newspaper: and in some respects under greater advantages than by any other method—it costs less, both of time and money, to obtain it by appropriating to it *leisure moments*, than by taking it up as a regular and principal business—the knowledge got in this way is more thorough, as it brings to its aid from week to week, the magic wand of *conversation.*

We are convinced, that for practical purposes, Natural Philosophy, Chemistry, Geometry, Geography, Minerology, Botany, or almost any other science, may be studied more pleasantly, and more thoroughly, with far less expense, from connected essays and illustrations in a weekly paper, than by any other means. In our next volume, we shall be able more fully to execute that plan, than we have in the past.

Among the subjects which we design to present in the form of regular treatises in our next volume are *anatomy*, or a knowledge of ourselves, aided by illustrations, and by explanations of the structure of other animals. *Natural Philosophy* and *chemistry* with their application to the useful arts, especially domestic economy and agriculture. *Geometry*, the most fundamental and the most practical of the sciences, will be pursued to some length with its various applications.

Geology will be pursued in a more thorough and systematic manner than it has been in this volume. On that subject so intimately connected with national and individual wealth and prosperity, we shall give the best of our feeble efforts to forward the collection of Cabinets of Natural History in all our towns and villages throughout the Union, together with a national deposit in New York.

Christian Benevolence.

We have received with no small satisfaction, from very numerous teachers and some other sources, accounts of regular contributions from the members of schools for benevolent objects. We are almost ready to believe, that the practice of *giving*, of contributing *money* and *effort* on the part of children for benevolent and christian objects, is the corner and foundation stone of the whole fabric of education. We hope to see the time when every child in our land, will contribute one cent a week at least, for benevolent objects. The practice of making presents to teachers which is becoming common is full of effect, both to teachers and pupils: we hope and believe it will soon be universal.

We shall continue to render every aid in our power to forward that object, which is not only the life and hope of schools, but the glory of the universe and the only hope of our fallen world.

Cooperation of Schools.

The readiness and success with which schools from the most distant parts of our country have been induced to correspond with each other on several interesting subjects, have been the source of much satisfaction to us; and from the progress already made on that subject, we shall pursue it with increased ardor and courage. The idea of a correspondence among the fifty thousand schools in the Union is truly delightful, because it is rational, benevolent, republican: and we invite the attention of teachers and parents to this subject, as furnishing a source of the deepest interest to their pupils and children.

Improvements in Teaching.

It will be our aim to present from time to time what we consider correct methods of teaching, or acting on mind and heart, so as most effectually to enlighten the one and elevate the other.

Intelligence.

Items of intelligence, especially those connected with education and the scientific world, will be given in our columns.

For several reasons, we think September the preferable month to commence a volume: we shall therefore defer the commencement of the next volume for two or three weeks, when we hope to commence a new year's correspondence with our patrons and friends, for our mutual improvement and advantage.

SPRINGS.

Saratoga and Ballston.

These springs are the most celebrated mineral waters in America. They are about 30 miles N. of Albany, and are spread over a tract about 12 miles in extent, having an indifferent soil, with a natural growth chiefly of yellow pine. There are various springs known by different local names, but the most noted are those at the villages of Saratoga Springs and Ballston Spa. These villages contain numerous large hotels and boarding houses for the accommodation of strangers; and during the warm season they are visited from various parts of the Union, by great numbers of gay and fashionable people, as well as invalids.

Congress Spring at Saratoga is in its medicinal qualities the most important of these fountains. According to the analysis of Dr. Steel, one gallon of the water of this spring contains the following ingredients:

Muriate of Soda, - -	471.5
Carbonate of Lime, -	178,476
Carbonate of Soda, -	16.5
Carbonate of Magnesia,	3.356
Carbonate of Iron, -	6.168
	676 grs.
Carbonic and gas, - -	343 cubic inches.

'It will be perceived,' adds Dr. Steel, 'that the quantity of fixed air, or carbonic acid, exceeds every thing of the kind yet discovered, and that this, combined with the marine salt, and various carbonates, gives to the waters of this fountain, in their cathartic properties, a decided preference over those of any other spring, hitherto known.

'The gas escapes through the water in fine bubbles, giving to the surface the appearance of simmering. When first dipped, the water is remarkably limpid; and were it not for the escape of free carbonic acid gas in numerous fine specks, it would be perfectly transparent. It however becomes turbid after standing a few hours, and deposits a sediment. Its most obvious effect, when taken as a medicine, is that of a cathartic and diuretic. In most habits this effect is produced by drinking 5 or 6 half pints in the morning before eating.

'The temperature at the bottom of the spring is 50 degrees; and it does not suffer any sensible change during the winter or summer; neither does the season appear to have any effect in increasing or diminishing the quantity of water.'

Large quantities of the Saratoga and Ballston waters are bottled during the summer months, and sent to the cities on the sea coast. Considerable quantities are also exported to the West Indies and to Europe. These waters are considered by the farmers in the neighboring region an excellent beverage, and are much used as a refreshment amid the labors of the field.

Inflammable Spring.

In the township of Wales, 15 miles from Buffalo, near the bank of a small stream, there issues from a ledge of slate rock a stream of air, which, on the application of a torch, takes fire, and continues to burn till it is extinguished by the rising of the water of the rivulet. The flame is about 6 inches in length, and 2 1-2 in diameter.

SCHOOLS.

New-York Schools.

Having been frequently in the New York schools, we can speak of them with confidence, and we can speak of their excellence. The general system, or organization, the management and instruction, are so complete, as to render the means of education in that city of a superior kind.—The infant, primary, and grammar departments are so arranged in their connection with each other, as to leave no broken link in the chain; but they render the several stages of advancement natural and happy in their results.

The selection of studies is also judicious, and the instruction given in them is rational and thorough. Monitorial instruction is brought in as an aid, rather than a substitute for the teacher's services. Teacher, monitor, and pupil are all busy and all active. The common branches of reading, spelling, writing, arithmetic, grammar, geography, &c, are well taught and thoroughly understood.

Besides these regular and fundamental studies, the pupils have occasional and voluntary exercises, which have an important influence on the character and prosperity of the schools.

In some of the schools at least, the pupils have organized Lyceums, or associations for mutual improvement. One of the school Lyceums has a cabinet, containing 3878 specimens, consisting of pieces of mechanism by their own hands, minerals, shells, animals, engravings, drawings, &c.

The Lyceum in Public School No. 3, the one just referred to, have sent out specimens to schools in different parts of the country, which have animated them to similar efforts.

The public schools in the city of New York are well worthy of being visited by every teacher and school committee, who can have the opportunity; and their system of management and instruction are worthy of imitation by all who wish for good schools.

The present excellence of the New York schools is owing in no small degree to the efforts of a general agent of all the public schools in the city. Although every city, or every county, could not procure Samuel W. Seton for their agent, they might, to great advantage, procure agents who would in most cases double the value of the instructions now received by their schools.

Hartford Schools.

For the excellence of the Hartford schools we refer our readers to the small volume recently prepared by Dr. W. A. Alcott, of this city, entitled 'A Word to Teachers, or Two Days in a Primary School,' mentioned in our last.

Boston Primary Schools.

We wish we could give as favorable an account of the Boston Primary Schools, as we can of those of New York, Hartford, and many other places. But after visiting schools in each of the twenty-four states, we are compelled to say, that we know of none so far below what they ought to be and what they might be, as the Primary Schools of Boston.

Chillicothe (O.) Seminary.

The Female Seminary of Chillicothe, under the charge of Miss Stearns, formerly from Miss Grant's school, is highly flourishing. By a catalogue recently received, it contains ninety-eight pupils.

An Exhibition Worth Having.

The New York Advertiser says, that at a late meeting on the subject of Education, in Brooklyn, two boys attended as delegates from a Juvenile Lyceum in Public School No. 3, in New York city, and presented to the meeting various curious specimens of juvenile ingenuity. There were several figures of deer, lions, horses, &c. cut in wood with penknives, and surprisingly like nature, considering that they were copied from mere drawings by the eye. But the most curious object of all, was a steam engine about 18 inches high, complete, and worked with a crank, presenting every part well proportioned, most nicely adjusted, and closely imitating a large one, even to the date, ornaments, &c.;—the astonishing production of a lad of 14 years.

This Juvenile Lyceum was formed in May last, and now possesses a cabinet consisting of the following articles collected or made by the members:—Specimens of mechanic arts (shoes, sleighs, buckets, &c.,) 861; shells, 2,215: minerals, 240; insects, snakes, &c., 115; combs, 162; reptiles, 5; pencilled and painted drawings, 250; engravings, (foreign) 24. Total, 3,887.—*[Juvenile Rambler.*

Ages of Trees.

According to the last journal of health, there are some very aged trees in the world. De Candolle, a writer on the subject, thinks he has proved in some way which satisfies him, that there are trees in the world of the ages annexed to their names below.

An Elm,	335 years.
Cypress, about	350
Ivy,	450
Larch,	576
Orange,	630
Olive,	700
Oriental plane, more than	720
Cedar of Lebanon, about	800
Oaks,	810, 1080, 1500
Lime,	1076, 1148
Yew,	1214, 1458, 2588, 2880
Taxodium,	4000 to 6000
Baobab,	5150.

The baobab is a tree of Africa, which has a trunk sometimes 60 to 80 feet in circumference, although it is scarcely a dozen feet high. With the Taxodium and Larch we are unacquainted.—*[Juvenile Rambler.*

QUESTIONS

ON THE LAST NUMBER OF THE LYCEUM.

What are some of the simple elements of nature?

How many elements compose the vegetable kingdom? how many the animal?

Of how many elements is water composed? also the atmosphere?

What are some of the letters in the geological alphabet?

What three minerals compose granite? What other rock except granite is composed of the same?

What minerals compose mica slate?

Does hornblend compose a part of granite or sienite?

What is greenstone composed of? also sienite?

What occasion has lately occurred in N. York favorable to common schools?

How many children are there in Pennsylvania, who are proper subjects of common school instruction? How many of these are destitute of instruction?

Who has given a description of the Hartford schools? and which does he think furnishes the best example for imitation, the Hartford or the Boston schools?

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PUBLISHED AT NO. THREE, CORNHILL.

FAMILY LYCEUM.

The proposal, to furnish a weekly scientific visiter to the "*Family School and Lyceum,*" has met with such a large share of public favor, and such prompt and extensive patronage, as to convince us that the time is not distant, when some visiter of the kind will be invited and received into every intelligent family and nearly every school and lyceum in our Union. Taking courage, and animation at the prospect of rendering our efforts useful to our country and our fellow men. Through such a channel, we wish to state to our patrons, the plan and some of the advantages we contemplate in filling our columns.

Universal Education. — It will be one of our first objects to present the principles of science, and various subjects of useful knowledge, in their *native and beautiful simplicity;* knowing that so far as that is done, they will commend themselves alike to every mind and every heart — that they must readily find a place, and do their appropriate work in the minds of the plainest farmer and mechanic, and even of the child, while they can never cease to be admired by the most learned philosopher. So far as we can succeed in presenting to our readers the simplicity of science, which constitutes the beauty, the grandeur and the power of science, we hope to render some slight aid in the great work of Universal Education.

The Arts. As every useful and domestic art depends for its success upon the simple elementary principles of nature, so far as they are understood, they will add both to the pleasure and the success of any, and every pursuit of life. To give that use to these principles we may from time to time bring forward, will be our constant endeavor.

Families, Schools and Lyceums. Between these three *Republican* institutions there is a powerful reciprocal action, and a beautiful harmony. If one suffers the others must suffer with it; if one prospers, the other must prosper with it. To aid this reciprocal action, and to strengthen this harmony, will be a prominent object of the Family Lyceum.

Coöperation. If all the Schools and Lyceums in the *American Union* can fully participate in the exchange of favors and various kind offices, which are most successfully and happily commenced, no one can doubt but they would do much — that they would be *effectual*, in laying a broad and strong foundation for the perpetuation of that Union. To forward a system of cooperation by exchanges in specimens of Natural History and artificial productions, by journals, &c, we shall aim constantly and perseveringly For that purpose, we shall esteem it both a pleasure and an honor to render our columns, the medium of communication between Schools and Lyceums in all parts of the country.

Lyceum Seminaries. It is fully proved by experiments, that *Self Educating*, and *Self Supporting* schools, are calculated to make better scholars and better men than those depending upon the money of parents or other friends. No one can doubt, but by the aid of a County Lyceum, such a school might be put in operation, in each of the thousand counties in our Union. And while it is truly gratifying to learn that County Lyceums are rapidly springing up in all the States, we hope that among all the good objects they are effecting for the cause of education and of humanity, the power and the dignity of the self supporting and self educating principle of man will be kept constantly in view, and eventually brought fully into operation.

NOTICES.

The following extracts from a few of very numerous notices given of the Lyceum, will give some view of public sentiment on the proposed plan for diffusing knowledge.

Family Lyceum. — We have received the second number of the above paper, which is equal, if not superior, to the first, in interest. If we have a correct idea of the work, it is the purpose of the editor to give his readers a continued course of study, regularly arranged under appropriate heads. Short, and well written articles, on the different branches of a good English education, are furnished weekly, so that the reader in the course of the year will have an opportunity of acquiring much useful information in several branches at the same time, without fatiguing the mind. Mr Holbrook, the worthy gentleman who conducts this periodical, in our opinion, has hit upon the most proper mode of giving instruction; for he proceeds upon principles that are in exact accordance with the philosophy of the human mind. His object is to present to the learner, articles on the subject of education in such a form as to *please, instruct* and *profit*, all at the same time.—*N. E. Ch. Herald.*

Every periodical should have a *definite* object — a *good* object — an *important* object — an *attainable* object. This object should be clearly apprehended and heartily pursued by the editor; who should be judicious, patient, persevering, "apt to teach," honest, faithful, and under the influence of sound moral principle. Such a periodical is the "*Family Lyceum,*" and such an editor is *Josiah Holbrook*, the founder of the American Lyceum System.— *Genius of Temp.*

Family Lyceum.— This is the title of a a small and beautifully printed sheet just issued from the Boston Lyceum Press, under the editorial auspices of Josiah Holbrook, Esq. the founder of the American Lyceum system of self-education. We hail the appearance of this weekly paper as a most auspicious movement in favor of special improvement. Mr Holbrook in his prospectus justly regards the family circle as the fountain head of all seminaries of instruction. The university, the college or the church that does not reach the family hearth with its influences, fails of its true object. — *N. Y. Weekly Mes.*

Family Lyceum.— Such is the title of a small but neat and well conducted weekly paper, the publication of which has just been commenced in Boston, under the management of Mr Josiah Holbrook. We cannot sufficiently commend the design of this publication, which is to make *Science* accessible to all, the old and the young, the poor as well as the rich; to bring it home *to the family fireside;* to teach useful knowledge of all sorts, in a manner so plain and familiar that the most unscientific can comprehend and acquire it; and to furnish instruction at a rate so cheap that every one can afford to purchase it.

The "Family Lyceum" is admirably calculated to facilitate and to direct these efforts for acquiring useful knowledge. The price is a mere trifle, only two dollars a year. *No family in the United States ought to be without this invaluable periodical. — Troy Sentinel.*

The "Family Lyceum" is the name of a weekly paper, just published in this city by George W. Light & Co. and edited by Josiah Holbrook. The first number is a capital one, both in its typography and matter. No man in this country is better qualified to conduct such a publication than Mr Holbrook. He is a great intellectual reformer, and is worth to society a thousand fold more than he will ever receive. — *The Liberator.*

Family Lyceum. — Mr Josiah Holbrook, the gentleman to whom the public is much indebted for his labors in simplifying a knowledge of the useful sciences to common minds, has commenced in this city a small weekly paper entitled "Family Lyceum." Its object is to bring into the family circle, conversations on subjects, that have been too much considered to be out of the range of common minds, and have been denominated occult and philosophical. Mr Holbrook's object is, the devolopment of that information in the sciences in a practical way, which will show its usefulness, and its adaptation to the purposes of common life. — In this first No. he has some illustrations of Geometry, Geology, Chemistry, &c, &c. — *Christian Watchman.*

"Family Lyceum."— The second number of this new and highly interesting publication, edited by Josiah Holbrook, Esq. has made its appearance. It fully sustains the character it has adopted. It should be a constant visitor to every family, especially, where there are children. The object is worthy of the highest encomiums; an intelligent public will not fail to bestow them.— *Boston Christian Herald.*

Family Lyceum. — We have received the first number of a very handsome little sheet, entitled the "Family Lyceum." — It is to be issued from the press of Mr G. W. Light, Boston, under the editoral management of *Josiah Holbrook*, Esq. The first number is filled almost entirely with scientific matter, served up in a most popular and pleasing manner. If it may be regarded as a fair specimen of the work, the cause of education in this country cannot fail to receive much benefit from its circulation. Mr H. is extensively known as an active and efficient laborer in promoting the interests of education generally, and particularly in forwarding the establishment of Lyceums The tact and industry displayed in the first sheet of this interesting publication, has excited our best wishes for its abundant success. — *Western Luminary.*

We have just received the first number of the Family Lyceum, a small, but very neatly printed paper, just established in Boston by Mr Josiah Holbrook, who seems to have devoted his time and talents to that truest walk of patriotism and philanthropy, education. The Lyceum has for its object, to communicate in a familiar and popular form, a knowledge of the most useful sciences; the further effect of which must be, to produce in the community an increasing sense of the unspeakable importance of education in a free government. We wish the Lyceum, or some paper conducted on the same plan, was taken by every family in the United States. — *Georgia Journal.*

Family Lyceum. — This is the title of a newspaper, published in Boston, by Geo. W. Light & Co., and edited by Mr Josiah Holbrook, the mention of whose name will at once make our readers acquainted with the character of the paper. It will be found valuable in families, and may be used to advantage as a reading book, or to be studied as lessons, in common schools. It will deserve, and we confidently hope, will receive, an extensive patronage. — *Vermont Chron.*

Family Lyceum. — We have seen two numbers of a publication with this title, lately established in Boston, by Josiah Holbrook, the gentleman whose exertions in establishing lyceums in various parts of the United States, have been so indefatigable and efficient.

We anticipate from the *Family Lyceum*, principles and illustrations of that science which makes man lord of the lower world, and gives him that dominion over the realms of nature, to which, by the means of the proper development of his intellectual energies and faculties, he is designed by his Creator.

We have no doubt but the time is under rapid *head* way in which nitrogen, oxigen, hydrogen, and the rest of the *gens*, sulphates, and sulphites, and the rest of the *ates*, and *ites*, will be household words, and as familiar to the lips of infancy and the prattle of adolescence, as the letters of the alphabet. — *New England Farmer.*

Family Lyceum.—We are much pleased with the appearance and matter of the paper, and can cheerfully recommend it to our readers, as well calculated to disseminate knowledge — useful knowledge, in families. It is edited by Josiah Holbrook, proprietor of the School Apparatus, advertised in our columns this week, a specimen of which is deposited in the Auditor's Office for public inspection. — *Western (Ohio) Courier.*

Family Lyceum is the title of a new weekly paper lately established in this city, edited by Josiah Holbrook, and intended to co-operate with Lyceums and schools in the diffusion of knowledge for the people.

"Mr Holbrook deserves a statue for his services to the public in the cause of education," observed a gentleman, who is himself distinguished as a scholar and philanthropist. Now we think that, in the "Scientific Tracts," "Apparatus," and this "Family Lyceum," Mr Holbrook is erecting a statue for himself which will prove more durable than marble. His name, and memory will be linked with the associations of science and morality, and the extension and increase of intelligence, goodness and happiness in our land.

This is deserved commendation, not a compliment — though the ladies might be expected to value highly the talents and merits of a gentleman who shows himself so truly their advocate and friend. To encourage our own sex to patronize the "Family Lyceum" we copy from its columns some notices which will show the tendency and spirit of the work. Though the paper is not all addressed to ladies, "it is fit for ladies." Free from political excitement, sectarian bitterness and romantic incident, and devoted to science, literature and moral improvements, it is the paper for the fireside and the school-room, for ladies, teachers and pupils. The price is *two dollars* per year, which we name, hoping the cheapness will encourage the circulation.— *Ladies' Magazine.*

Family Lyceum.— We refer the reader to the prospectus of this work, in another part of our paper, thirteen numbers of which have reached us; we have given them a faithful examination, and must say that they contain more useful information than we have ever found in the same space.—*Mount Vernon Gaz.*

Charleston, S. C. Nov. 6, 1832.

My Dear Sir — I have examined "The Family Apparatus, or Intellectual Toys for the amusement and instruction of children," together with the little pamphlet, explanatory of their character and uses. I have been highly gratified by the opportunity thus afforded of witnessing the reduction to practice of the important principle, that the amusements of children should not only be innocent, but ought to be, as they can be, the means both of moral and intellectual improvement. Mr Holbrook has illustrated, very happily, this interesting truth, and I feel assured, that the extensive use of his Apparatus, would be an actual benefit to every family into which it should be introduced, and through them to the country at large. Mr H. is right when he says, the "mischief of children is the employment which they select for themselves, because their parents select none for them." And again, "a great portion of the vice and corruption of society evidently arises from amusements of a bad tendency." I fear that few persons, and I fear that very few parents realize these truths. And yet to realize them is of great consequence to the moral and intellectual improvement of children. Mr Holbrook's labors are calculated to fix these truths deeply in the hearts and minds of all who regard infant education, as the safe and wise foundation of excellence in character, and improvement in wisdom, through life.

Respectfully, and with esteem,

Thos. S. Grimke.

The Rev. Mr Jackson.

TERMS.

The Family Lyceum will be published every Saturday, at two dollars a year in advance. Three copies for five dollars. The previous seventeen numbers, except the first can be furnished for the present, which, on account of their elementary character and connected essays, will be found important.

Family Apparatus $5 a set; school sets $10; for Lyceums and Academies, Chemicals $25, Astronomicals $20; Philosopicals from 15 to 25 dollars. Those articles which can be taken separate, School Globes $1,50; School Orrery $3, Arithmometer $1,50; Lyceum Orrery $12, Hydrostatic bellows $3, Pyrometer $2, Lampstand $2, Seasons $3,25; Mechanical Powers $12; Geometricals $4, Arithmeticon, set of geometrical diagrams, one of manuscript letters, and easy lessons in Geometry, 12 1-2 cents each; to be had of Allen & Ticknor, and Carter, Hendee & Co. Boston, or of Thomas T. Ash, Philadelphia. Communications and remittances for the Family Lyceum, to be made to the editor who will also attend to orders for apparatus.

Note. The best method which has been adopted for furnishing schools with apparatus, is by the contributions of from 20 to 30 cents each from the pupils; which enlarges their hearts by using the means to improv their minds. If each teacher should propose this to his pupils soon after his school commences a great portion of the schools might be supplied this winter.

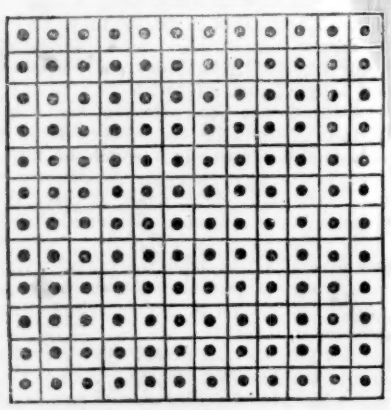
APPARATUS.

By the prints which follow some idea may be formed of a few of the articles of apparatus which have been prepared for the use of families, schools and Lyceums. By the explanations which have been and which will be given, in the columns of the Lyceum, both the apparatus and the principles of science which it is intended to illustrate may be understood and applied.

ARITHMOMETER.

This instrument is intended to illustrate the combinations and the powers of members; from the first attempt at counting by the little child, to some of the most advanced principles in Arithmetic, and even in Algebra. It must be evident to every one, that 144 movable objects, arranged in a compact and convenient form, must be capable of illustrating the combinations and the applications of numbers, and some other subjects in almost an infinite variety of forms. That here represented is for schools, a smaller one is for families.

ARITHMETICON.

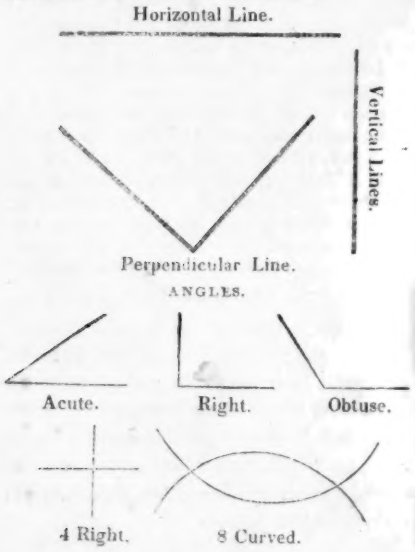


The diagrams here represented are upon a sheet and intended, to some extent, for the same object as the last. Besides illustrating numbers, it is designed for some of the fundamental principles in Geometry which will be more fully understood by the sheet itself. A Sector, or small square, accompanies the arithmeticon, by which a great variety of illustrations can be made, both in Arithmetic and Geometry.

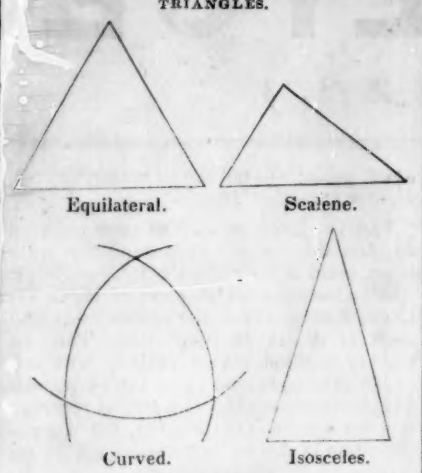
GEOMETRY.

The use of geometrical diagrams and solids in infant schools and families, as well as in primary and high schools, has fully proved that some of the first elements of geometry are, not only more elementary, in science and the arts than any other principles, but that they are better fitted to employ and amuse children than any other toys which can be presented to them.

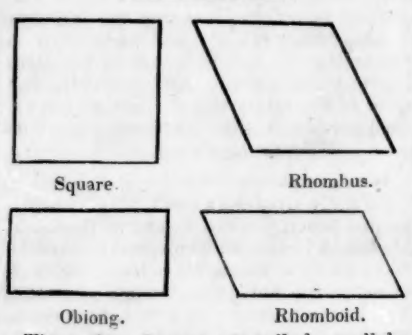
The following cuts represent the apparatus, and in some measure explain the principles, which are most fundamental in the most fundamental of the sciences.



TRIANGLES.

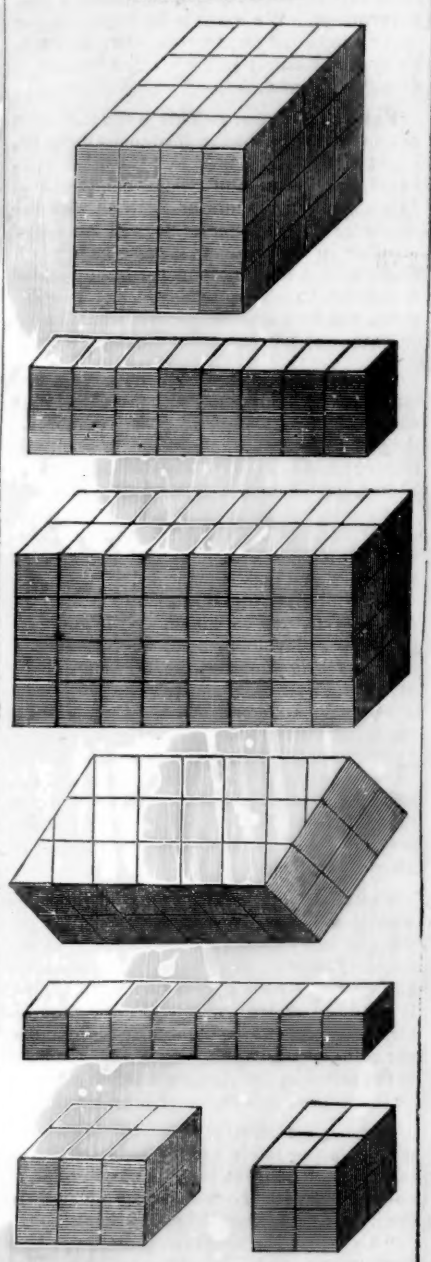


PARALLELOGRAMS.



These four figures are called parallelograms because their opposite sides are parallel.

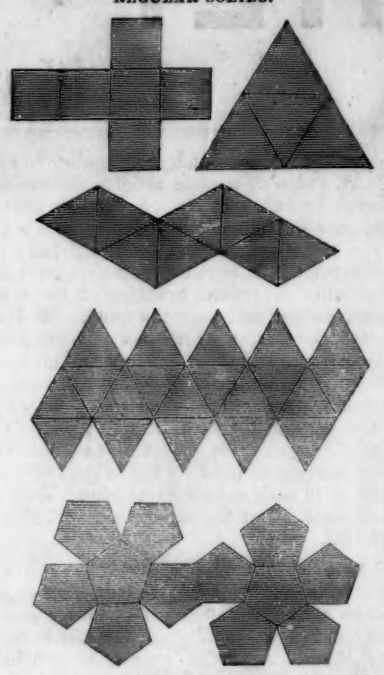
PARALLELOPIPEDS.



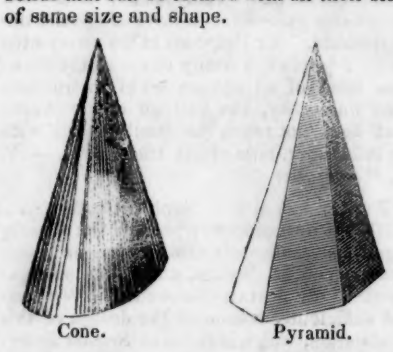
All solids inclosed wholly in parallelograms are called parallelopipeds, of which there is a great variety, as will be understood by the few here represented.

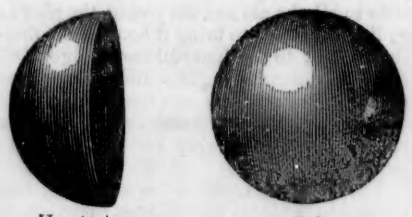
It is not easy to calculate the aid these solids, which form a part of the apparatus both for families and schools, afford both to children and adults, in learning mensuration, or the method of measuring various kinds of bodies, such as wood, timber, boxes, bins, cisterns, &c, &c. They dispel at a glance, a great deal of darkness, which would otherwise rest upon the subject through life.

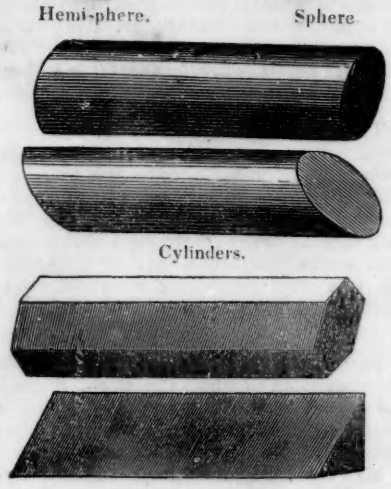
REGULAR SOLIDS.



Five geometrical solids have all their sides in each, of the same shape and size, and are hence called regular solids. The most simple of the five, or the one having the smallest number of sides, is inclosed in four equilateral triangles, the smallest number of plane surfaces which can inclose any solid. The next is a cube, having six equal squares for its sides. The next has eight equilateral triangles for its sides. Another has twelve pentagons and the last twenty equilateral triangles. These are all the solids that can be formed with all their sides of same size and shape.

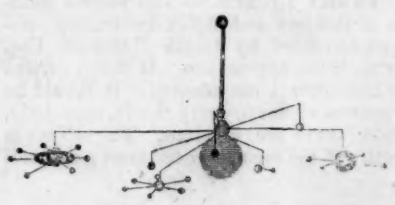






SCHOOL ORRERY.

The school orrery here represented is intended to be suspended in school rooms where it will give to the pupils a view of the solar system, and will render their books which treat of the subject, both intelligible and interesting. Its being suspended over head, either at home or at school, will put it out of danger from children, while it carries to their minds the ideas for which it is designed.



MECHANICS.

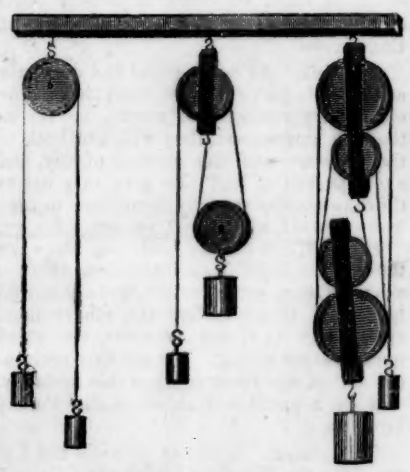
SIMPLE LEVER.

The lever may be considered the element of all machines and the instrument of motion to the whole animal kingdom. More than that, its principles and uses are so simple, and may be so familiarly and agreeably illustrated, as to furnish instruction and entertainment to the child of six or eight years of age. Though this, with the other mechanical powers, is a part of the Lyceum apparatus, it may be used to advantage in every primary school, and even as a toy for children at home.

COMPOUND LEVER.

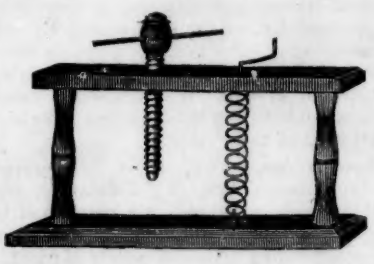
But few mechanics who are in the constant use of levers are aware of the great power which may be gained by bringing one lever to act upon another, or by compound levers. The apparatus represented in this cut, illustrates the nature and operations of compound levers, and shows that by bringing three levers to act upon each other, one pound may be made to balance one thousand pounds, and that it may be applied to a great variety of purposes in the arts.

PULLEYS.



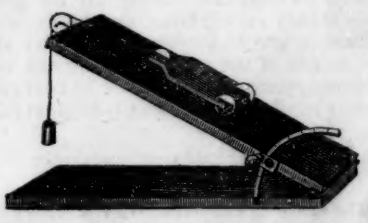
The pulley is a kind of endless lever, and is more used aboard ships, than either of the other mechanical powers. It is also extensively used in the domestic and practical arts. The variety of levers is very great. This is one of those connected with the Lyceum apparatus.

SCREW.



The uses of the screw, in the useful and domestic arts are exceedingly numerous, but we must refer our readers to the future numbers of the Lyceum for a due explanation of it.

INCLINED PLANE.



Few are probably aware of the innumerable and constant uses we make, in one form or another, of the instrument here represented: The earth itself is literally one continued inclined plane, and we are constantly resorting to some modification of it, for performing the most common operations of life.

The wedge is a modification of the inclined plane, but has its separate and appropriate uses.

ASTRONOMY.

LYCEUM ORRERY.

This instrument gives a more full illustration of the Solar System, than is done by the school orrery. By wheel work and a crank, it illustrates the relative motions of the planets, as well as their comparative sizes.

SEASONS

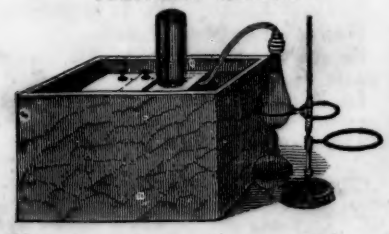
The instrument here represented gives a familiar and clear illustration of the cause of summer and winter, of the difference in the length of days and nights, and other phenomena connected with the change of seasons.

TIDE DIAL.

The phenomena of tides is probably more clearly illustrated by the instrument here represented than by any other which has been prepared for Lyceums or colleges. A crank connected with wheel work, gives the parts motion so as to show the revolution of the earth and the revolution of the moon round the earth, the cause of the moon's rising later daily, &c, &c.

CHEMISTRY.

PNEUMATIC CISTERN.



No science better deserves a place in Lyceums and schools, and even in families, than chemistry. A knowledge of the chemical properties of the atmosphere, and its varied and intimate connexions with everything relating to life, is not a small or an unimportant thing.

For this science, a pneumatic cistern is the most important instrument. The one here represented, is so small as to be portable, and is still [illegible]ted with two gasometers, a sliding shelf, and compound blow pipe. It is particularly designed for Lyceums and academies, but has been frequently used in common schools and sometimes in families.

With it is represented a lampstand and retort, which come into frequent use in chemical experiments, and in connexion with the cistern.

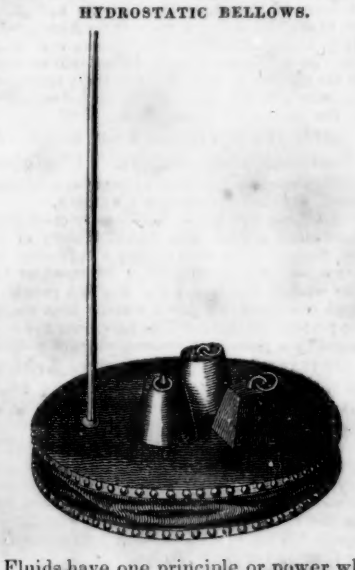
PYROMETER.

No substance in nature is so universally diffused as heat, and no principle is near so universal or so uniform as its expanding bodies. This principle is shown by the pyrometer. The one here represented is so sensible, that a small slip or roll of paper, ignited and applied to the rod of iron, brass or other metal to be expanded, will give the index which shows the expansion a complete revolution.

EOLOPILE.

This instrument shows, both the expansive power of heat, and the principle of evaporation. By heating the bulb in a lamp, (a spirit lamp is preferable) and then inserting the end of the tube in alcohol or ether, where it is to remain, until the expanded air in the instrument contracts, and its place is supplied by the liquid, when by again applying it to the lamp, a stream of vapor will be forced from it, which if lighted by another lamp will give a blaze, sometimes two or three feet in length.

HYDROSTATIC BELLOWS.



Fluids have one principle or power which appears like a paradox. By this principle a a few drops of water may be made to raise a very heavy weight, and a man may raise himself with his own breath. This principle is shown by the hydrostatic bellows. A pint of water poured into the tube may be made to raise a weight placed upon the bellows of nearly two hundred pounds. Or if a person stand upon the bellows, and force his breath into the tube he may raise himself two or three inches, or to a much greater distance if the instrument was designed for it.

Various other instruments, not here represented, belong to the chemical apparatus. There is also a set of chemical ingredients consisting of some of the most important substances for chemical experiments, which are not found in common druggists' shops. The set of apparatus and ingredients are sufficient for performing very many of the most interesting and important experiments in the very practical science of chemistry; and they may be used by the young people of any village, or by any individual who will make the attempt.

On account of the interesting character and primary importance of this science it is our intention to commence a systematic treatise of it soon in our paper, explaining the principles and the applications of the science, and the various instruments by which those principles and applications are illustrated. Of course so far as the apparatus is procured by Lyceums, and the paper by their members and made a family companion, the principles and experiments which are performed and explained may be understood, and what is more important may be made the topic of conversation and hence become as common property as the air or water to which they relate.

FAMILY APPARATUS.

Few circumstances connected with education afford higher gratification or better promise for this great and good cause, than the general interest expressed in the intellectual toys for children wherever they have been introduced. One parent writes that since his children have had a set of family apparatus, to instruct and amuse each other at home, they manifest a double interest, and make double improvement in their studies at school. A teacher says, that those pupils who are furnished with apparatus at home study better and understand quicker all their lessons at school. Another says that the "Intellectual toys" have paid for themselves several times over, in taking the place of other toys, and in preventing mischief formerly done by his children: and that they afford instruction and entertainment to children of a larger, as well as of a smaller growth.

SCHOOL APPARATUS.

If no other object but saving the wear and tear of books was to be effected by school apparatus, that would be sufficient for its introduction into every school in the Union. But higher objects are to be effected by it. The instruction communicated by it is more *clear*, *rapid*, *thorough* and *permanent*, than it is possible to give through the medium of books merely. It also makes children love their books better and their school better, and to carry the spirit and influence of both to their homes, and into future life.

LYCEUM APPARATUS.

Both the family and the school need the aid of the Lyceum. Each is incomplete and weak without the aid of the other. But when combined in their spirit, their efforts and their instruments, each becomes powerful by receiving aid from the other two; and together, they can render a community and each individual worthy of the nature of man by giving him some faint resemblance to his Creator.

When the entertainment, the instruction, the practical knowledge and the economy of a set of Lyceum apparatus, together with the mere trifle it can cost the citizens of any town or village are taken into view, it is a matter of surprise that it should be neglected by any community for one season.

The price of a family set is $5,00, that of a school set $10, and can be procured in most schools by the contributions of 20 or 30 cents from each pupil; and a set for a Lyceum can be procured for 75 or 100 dollars, by the payment of one or two dollars from each member.

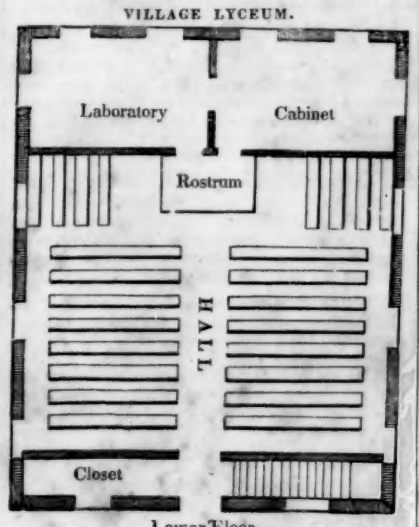
These three sets have been prepared with direct reference to each other, and to the co-operation of the three institutions for which they are severally designed.

Each or all the sets can be procured by on order and remittance to the editor of the Family Lyceum, to Messrs Allen and Ticknor, or Carter, Hendee & Co. of Boston, or to Thomas T. Ash of Philadelphia.

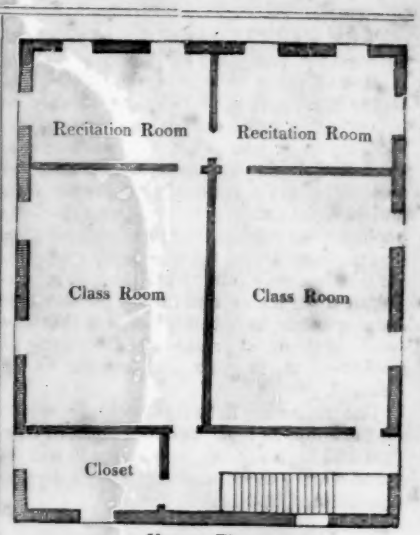
FOUR SPECIFIC OBJECTS.

Apparatus for families, schools and Lyceums, *Cabinets* of natural and artificial productions, *school libraries*, and *Lyceum buildings* are objects in which every man, woman and child in our Republic, are interested, and in which nearly all may *immediately* unite their efforts to procure.

VILLAGE LYCEUM.



Lower Floor.



Upper Floor.

To furnish every town and village in the American Union with a place of general intellectual and social resort for its citizens, is an object worthy of every patriot and every philanthropist, of every parent and every teacher in the nation. And as every one will see, that notwithstanding its vast magnitude and importance, it is not only practicable, but easy of accomplishment, we hope it will commend itself to every heart and every hand. No subject, and no object is probably more worthy of the united systematic and pressing efforts of the American press. It is an object to which no editor, no politician, and certainly no christian can object, which every one must acknowledge when accomplished, would form a bulwark to our nation's liberties and a monument to our nation's glory.

Who will not take a share of twentyfive dollars in such stock? What parent would not pay that sum for the surest legacy he could leave for his children? What patriot would not pay it, to secure the liberties, and to perpetuate the existence of our nation? What philanthropist would not pay it for a free Republic to be held up as an example to the world, and as a bequest to future generations of the self governing power of man.

We invite those, into whose hands this sheet may fall, to articles on this subject in the ninth and fourth numbers of the Family Lyceum. It will there be seen that *economy*, no less than the value and dignity of intellectual and moral improvement, recommends this object to the citizens of every town and village in our nation.

OUR PATRONS.

Our present and future patrons, and all into whose hands this sheet may fall, are invited to request their neighbors, and especially teachers, to meet within a few days to consult upon the best measures for promoting the interests of schools, and to inquire whether the use of a Scientific journal, for the double purpose of a family paper and a school book would not be economical and calculated to promote the cause of intelligence and virtue.

SCHOOL AGENT SOCIETY.

The society organized about six months since, to procure, qualify, and aid agents to travel throughout the Union, for the advancement of education, have already done much towards effecting their object. To effect their object in full County and Town Lyceums are highly important. If a Lyceum could be organized in each county in the Western and Southern States, agents and teachers, especially ladies, might receive the most important aid, when going out under the patronage of the S. A. Society or otherwise.

TO EDITORS.

No class of the community, perhaps, have it in their power to unite so much strength or with so much success to lead the way in these four important and feasible objects as the editors of our public Journals. And it may be doubted if there are any objects in which they could unite with so much certainty of success, or with a prospect of such great and dignified results.

TO CLERGYMEN.

The clergy of this country are probably the warmest friends, and the most efficient patrons of Education, and of the general diffusion of knowledge. By the united efforts of clergymen of all denominations, in the objects abovenamed, they could hardly fail of doing much towards raising impassable bulwarks to our nation's liberties, and imperishable monuments to our nation's glory.

TO POST MASTERS.

It gives us no small degree of pleasure to say, that a request to post-masters, made in the first number of the Family Lyceum, has met with numerous and most valuable returns. A great amount of valuable information has been received from them, relating to schools, Lyceums and other literary institutions. We again invite those who may receive this sheet to forward the addresses of teachers, and the titles, with the addresses of the officers of such Lyceums, Academies or other literary institutions, as may come within their knowledge, to Josiah Holbrook, Boston, Sec. of the School Agent Society.

ELEMENTARY BOOKS.—[Among the duties of the guardians of public education, it is one thing to provide the *ways* and *means* in support of the cause; another to obtain competent teachers; and last, to furnish them, as you would the mechanic or the artist, if you would expect the best result from their labors, with proper *tools* and *materials*, that is to say, with the best books on the subjects which are proposed to be taught, and with the necessary apparatus for illustration. Money lavished on incompetent instructers and in the purchase of inferior books, is not only lost, but that time which is the most precious to the young for improvement, is gone and cannot be redeemed.

The following list of elementary works, on the subjects most usually taught in common and high schools, it is believed will be found worthy the attention of School Agents, Committees, and Instructers.]

LIST
OF APPROVED
SCHOOL BOOKS.

1. A Series of INTRODUCTORY SCHOOL BOOKS, by H. L. BARNUM, just published, viz:—

The Child's First Book of Spelling and Reading; with sixtyseven engravings.

The Child's Second Book of Spelling and Reading, connected with the Elements of *Writing*; with fiftyfive engravings.

The Child's Third Book of Spelling, Reading and Writing, connected with *Numeration* and *Mensuration*: with Maps and Engravings. Being an easy introduction to *Arithmetic* and *Geography*.

First Book of Geography, connected with Spelling, Reading and Writing. Illustrated by thirty Maps, and many beautiful Engravings.

The Author's leading principle is *association*: imparting ideas in the most natural and expeditious manner, by representations of visible familiar objects. The system begins with the most simple words in the English Language, and progresses step by step to the higher branches of study, keeping up a constant *review* of the matter in each preceding book. Much could be said upon the peculiar merits of these books, were it necessary. They are cheap, interesting, and inviting to the eye. It is designed to attract attention, elicit thought, engage curiosity, encourage inquiry, and excite reflection, upon natural principles.

2. THE NATIONAL SPELLING-BOOK. By B. D. EMERSON, Late Principal of the Adams Grammar School, Boston.

The improvements claimed for this, over most other Spelling-Books, are:—1. That it precisely points out the pronunciation *of each syllable, in every word*, according to Walker's principles;—2. That it is on a plan easily comprehended by the learner, and *without the incumbrance of numerous marks and characters*, which are so objectionable;—3. That it contains more matter, in the same number of pages, and in the same liberal type;—4. That the classification and arrangement are better suited to the *progressive* improvement of learners, and peculiarly adapted to the exercises of monitorial teaching.

This work is used exclusively in all the Public Schools of Boston. It is also approved and used in New York, Philadelphia, Baltimore, and in the Southern and Western States.

*** AN INTRODUCTION to this work, on the same plan, designed for very young children, and for primary schools, has recently been published by the same author.

3. WORCESTER'S SECOND BOOK FOR READING AND SPELLING.

Those who have used Mr Worcester's Primer are aware of his peculiar talents in rendering those usually 'dry subjects' interesting to children, and to them it is sufficient to say that the *Second Book* has same simple and attractive character as the first.

4. A THIRD BOOK FOR READING AND SPELLING; with Simple Rules and Instructions for avoiding Common Errors. By SAMUEL WORCESTER.

The plan and character of this work is different from any other now in use; each lesson is preceded by a Rule and a list of Errors—and the Reading is designed to be rendered not merely an exercise but a study, requiring much time and attention. We approve of the plan of this Book—it is just such an one as is needed—and we hope it will be adopted in every school in the country.—[Boston Evening Gazette.

5. Series of READING BOOKS, by Rev. JOHN PIERPONT.

THE YOUNG READER; to go with the SPELLING-BOOK. Embellished with numerous cuts.

INTRODUCTION TO THE NATIONAL READER. A selection of Easy Lessons, designed to fill the same place in the common Schools of the U. S. that is held by Murray's Introduction and the compilations of Guy, Mylius, and Pinnock, in those of Great Britain.

THE NATIONAL READER; Being a selection of exercises in Reading and Speaking, designed to fill the same place in the Schools of the United States that is held in those of Great Britain by the compilations of Murray, Scott, Enfield, &c.

THE AMERICAN FIRST CLASS BOOK, or Exercises in Reading and Recitation, designed for the use of the highest Class in Schools.

These four works, compiled by the Rev. JOHN PIERPONT, compose a series which is undoubtedly more suitable for the purposes for which they were designed than any previous publications; and they are more popular among those who have the direction of education than any ever prepared in this country. There is a decided advantage in possessing sets of elementary books by the same author, who has pursued a similar plan with each, rising step by step, and who it is to be presumed, would be better able to preserve the proper gradation of style and matter than several individuals would. This will be found to be the case in the present series—and no matter, which appears in one, is inserted in either of the others, so that the *four* compilations may be and are intended to be used in different classes in the same school.

At the present day all intelligent teachers are aware that to make good readers, you must interest their feelings and understanding in what they read. With these things in view, the author of this series has sought for matter of a lively, entertaining character, and, at the same time, such as would be calculated to produce a salutary practical effect upon the morals and habits of those who read it.

The three last of these books are used exclusively in the Boston Public Schools; have obtained an extensive circulation in the United States; and have been republished with favorable notices in England. The following are extracts from foreign papers.

"All interested in the education of youth must feel highly indebted to Mr Barker for his reprint of that excellent and popular school book—*The National Reader.*"—Cambridge (England) Press.

"We hesitate not to say the National Reader is a most valuable manual of school literature."—Sheffield (Eng.) Iris.

"In all respects we believe that it is superior to most of the collections now in this country."—Aberdeen (Scot.) Observer.

6. THE EASY READER. Designed to be used in the next course after the Spelling Book, in Schools and Families. By JOHN FROST. Second Edition, with a few additional Lessons.

7. SMITH'S ARITHMETIC. Practical and Mental Arithmetic, on a new plan, in which Mental Arithmetic is combined with the use of the Slate, containing a complete system, in federal Money. To which is added a Practical System of Book-keeping. By ROSWELL C. SMITH.

This work is strictly on the Pestalozzian plan, adopting no rule without a previous developement of its truth. *Blocks*, illustrating the Cube Root have been prepared to accompany the work.

The following are a few of the prominent characteristics of this work.

1. The interrogative system is generally adopted throughout this work.

2. The common rules of Arithmetic are exhibited so as to correspond with the occurrences in actual business. Under this head is reckoned the application of Ratio to practical purposes, Fellowship, &c.

3. There is a constant recapitulation of the subject attended to, styled, "Questions on the foregoing."

4. The mode of giving the individual results without points, for an answer, by which the relative value of the whole is determined, thus furnishing a complete test of the knowledge of the pupil.

5. A new rule for calculating interest.

6. The mode of introducing and conducting the subject of Proportion.

7. The adoption of the federal coin, to the exclusion of sterling money, except by itself.

These are some of the predominant traits of this work. Others might be mentioned, but, by the examination of these, the reader will be qualified to decide on their comparative value.

The Block, illustrative of the rule for the Cube Root, will satisfactorily account for many results in other rules; as, for instance, in Decimals, Mensuration, &c, which the pupil, by any other means, might fail to perceive.

Notice of this work from the Journal of Education.

"A careful examination of this valuable work will show that its author has compiled it, as all books for schools ought to be compiled, from the results of actual experiment and observation in the schoolroom. It is entirely a practical work, combining the merits of Colburn's system with copious practice on the slate.

"There are several very valuable peculiarities in this work, for which we cannot, in a notice find sufficient space. We would recommend a careful examination of the book, to all teachers who are desirous of combining good theory with copious and rigid practice."

8. SMITH'S INTRODUCTORY ARITHMETIC. The "LITTLE FEDERAL CALCULATOR," calculated to employ the mind and fingers only, and designed particularly to go before the slate, and to prepare for it. By R. C. SMITH.

9. WALSH'S ARITHMETIC. The Mercantile Arithmetic, adapted to the Commerce of the U. S. in its domestic and foreign relations; with an appendix, containing practical systems of Mensuration, Guaging, and a new and improved system of Book-keeping—a new edition, revised and enlarged. By MICHAEL WALSH, A. M.

This Arithmetic has passed through at least twenty editions, and is now generally used as the standard Mercantile Arithmetic in New England.

It may be used in Schools as a sequel to Smith's and other popular treatises on mental Arithmetic.

10. ELEMENTS OF ENGLISH GRAMMAR, with Exercises in Parsing. By JOHN FROST.

This work is noticed as follows by the Boston Association of Instructers.—"We have attentively examined your Grammar, and we do not hesitate to say that it appears to us better adapted to the younger classes in common schools, than any other work with which we are acquainted."

11. GEOGRAPHY FOR CHILDREN; with eight copper plate maps, and thirty wood cuts. By Rev. J. L. BLAKE.

"This publication seems admirably adapted to the purposes of geographical instruction of the younger classes in Schools."—*Boston Recorder.*

12. THE ACADEMICAL SPEAKER. By B. D. EMERSON, late Principal of the Adams Grammar School in Boston, and author of the National Spelling Book.

"The extracts are short, possessed of force and spirit, of unquestionable moral tendency, characterised by fine style and good taste, and each conveying a complete sense, intelligible to an audience, without note or title. It is plain that a youth may enter fully into the spirit of *such* pieces, which he cannot do where these requisites are wanting."—*Education Reporter.*

"We have looked with no ordinary degree of satisfaction at this volume. * * * We heartily commend the Academical Speaker to parents and teachers, as a work suited to the wants of schools and families—one, which will aid the business of *thinking* as well as reading."—*Phil. U. S. Gaz.*

13. THE POLITICAL CLASS BOOK, designed to instruct the higher classes in Schools in the origin, nature and use of Political Power. By WILLIAM SULLIVAN, Counsellor at Law.

The object of the Political Class Book is to point out to the young, who are in the course of education, their relation to each other, to society, and to their country; and to show, in a plain and simple way, the excellence and value of the political condition in which they exist. The further purpose is to give some information of the social system of which they are to become active members, and on which their happiness absolutely depends.

"The library of no citizen is complete where this work is wanting, and if the shelf contains no more than a Bible and an Almanac, the householder should not attend a town meeting until he has at least *read* the Political Class Book."—*Mass. Spy.*

It has been proposed in the Legislature of Massachusetts to order by law, its introduction into all the public schools of the State.

The *Moral Class Book*, by the same author, has met with great success, every copy of the first edition being disposed of. A new edition will soon be published, with improvements.

14. VOSE'S ASTRONOMY. A Compendium of Astronomy; intended to simplify and illustrate the principles of that science. Adapted to the use of Common Schools, as well as higher Seminaries. By JOHN VOSE, A. M. late principal of Pembroke Academy, and author of a larger work on Astronomy.

15. THE YOUNG ASTRONOMER, designed for primary Schools, illustrated with Cuts. By SAMUEL WORCESTER. New stereotype edition.

16. ELEMENTS OF GEOMETRY, with Practical Applications, for the use of Schools. By T. WALKER, late Teacher of Mathematics, in the Round Hill School at Northampton.

From J. Griscom, LL. D. Professor in the High School in N. York, to the Author.

"I may say with great sincerity, that I am highly pleased with your Elements of Geometry.

"It is just what was wanted to convince boys of the value of the science they are pursuing, and to cheer them in the pursuit."

This work, though prepared originally for common Schools, has recently been introduced as a text book in Harvard University.

17. ELEMENTS OF NATURAL PHILOSOPHY, with Practical Exercises. By F. J. GRUND.

In the following treatise, the author has made an attempt to supply a suitable work on Natural Philosophy for Schools. It is divided into ten chapters, treating separately upon the General Properties of Matter, of the Phenomena of Cohesion and Adhesion, of the Laws of Motion, of Hydrostatics and Ærostatics, of the Mechanical Powers of the Atmosphere, of Heat, Light, Electricity, Galvanism, and Magnetism. Each chapter is again divided into sections, which are numbered, and consist of short sentences, for the sake of being more easily referred to, and to assist the memory of young pupils.

18. GOODRICH'S HISTORY OF THE U. S.

19. EMERSON'S QUESTIONS. Questions and Supplement to Goodrich's History of the United States. By the Rev. JOSEPH EMERSON.

"Till within a few years, perhaps no School Book has been more needed than a good History of the United States. This most unhappy deficiency has been in a good degree supplied by the excellent and popular work of Mr. Goodrich. My first perusal of this book convinced me that it was the best extant, for the purpose intended. This conviction has been increased by a more intimate acquaintance with it."

20. OUTLINES OF CHRONOLOGY, Ancient and Modern. Being an Introduction to the Study of HISTORY on the plan of the Rev. DAVID BLAIR, with numerous engravings. With a CHART.

21. WHELPLEY'S COMPEND OF HISTORY.

☞Of *Whelpley's Compend*, the Rev. Mr. Emerson says, in the Prospectus of his Female Seminary, "For many years I have been solicitously inquiring for the best Compend of General History for the use of Schools. That which I consider by far the best, is the Compend of Mr Whelpley.

22. PARLEY'S FIRST BOOK OF HISTORY.

23. THE SECOND BOOK OF HISTORY, (comprehending the countries of the Eastern Hemisphere,) with many engravings and sixteen maps from steel plates, of the different countries. By the author of Parley's First Book of History.

24. PETER PARLEY'S TALES ABOUT ANCIENT ROME; with an account of modern Italy. With a map and engravings.

25. PETER PARLEY'S TALES ABOUT ANCIENT AND MODERN GREECE, with a map and engravings.

26. BOOK ON MYTHOLOGY, for youth; containing descriptions of the Deities, Temples, Sacrifices and Superstitions of the Ancient Greeks and Romans. Adapted to the use of schools.

27. LECTURES ON SCHOOL KEEPING. By SAMUEL R. HALL.

This work is intended to be a complete school teacher's *manual*, and contains all the necessary *practical diretions* for their observance in the instruction and government of schools.

☞Ten thousand copies of this work have recently been engaged for gratuitous distribution in all the school districts in the State of New York, by order of the Legislature.

28. LECTURES TO FEMALE TEACHERS. By S.R. HALL, author of Lectures on School Keeping.

29. INFANT SCHOOL MANUAL, OR TEACHER'S ASSISTANT, Containing a view of the system of Infant Schools. Also, a variety of useful lessons, for the use of teachers.—By Mrs. HOWLAND.

30. LEMPRIERE'S CLASSICAL DICTIONARY, Slightly abridged, but containing every important or useful name in the original, and divested of every thing indelicate, or which has rendered former editions improper for the use of the young.

31. ADAMS'S LATIN GRAMMAR. Gould's ed.

32. WALKER'S LATIN READER. The New Latin Reader, containing the Latin Text for the purpose of recitation, accompanied with a Key, containing the Text, a literal and free Translation, arranged in such a manner as to point out the difference between the Latin and English Idioms. For the use of beginners in the study of the Latin Language. By S. C. Walker. Philadelphia. Third Ed.

We have not a doubt that a clever boy will learn in one week more words, and more of the idiomatic difference between the English and the Latin by this book, than he will by the use of a grammar, dictionary, and the common mode of ancient instruction, in a month."—*Flint's Western Review.*

33. FIRST LESSONS IN LATIN. Upon a New Plan, Combining Abstract rules with a Progressive Series of practical exercises. By CHARLES D. CLEAVELAND. Second Editon.

34. BOOK-KEEPING, Suited to the business of Traders, Farmers, and Mechanics. Mostly by single entry, and designed for Schools. To which is added a key to certain parts of the Mercantile Arithmetic. By MICHAEL WALSH, A. M. Price 5 dollars per dozen.

35. A VIEW OF THE UNITED STATES; For the use of Schools and Families; with a Map and Engravings. By Rev. HOSEA HILDRETH.

It contains a great deal of information in a small compass, concerning the natural history, political events and local advantages of each state, &c. In a word, it contains the information which every child in the United States ought to obtain.—[Mass. Journal and Tribune.

36. AN ABRIDGED HSITORY OF THE UNITED STATES OF AMERICA; for the use of Schools, intended as a Sequel to Hildreth's View of U. S.

We have examined the book with attention, and recommend it as an excellent text book for Schools.—[Boston Evening Transcript.

37. THE CHILD'S BOOK OF AMERICAN GEOGRAPHY. Designed as an easy and entertaining work for the use of beginners. With sixty engravings and eighteen maps.

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48. RUDIMENTS OF THE ITALIAN LANGUAGE: or Easy Lessons in Spelling and Reading, With an abridgement of the Grammar. By PIETRO BACHI, Instructer in Harvard University.

49. MRS BARBAULD'S HYMNS FOR CHILDREN, IN ITALIAN; A new edition, corrected and improved. By PIETRO BACHI, Instructer in Harvard University.

50. MUSIC FOR SCHOOLS. THE JUVENILE LYRE, or Hymns and Songs, religious, moral, and cheerful, set to appropriate Music. For the use of Primary and Common Schools.

51. FIRST BOOK OF THE FINE AND USEFUL ARTS. For the use of Schools and Lyceums—with plates. Compiled by MARSHALL PERRY.

52. GOODRICH'S UNIVERSAL GEOGRAPHY, in one large vol. of 900 pages, and illustrated by 400 engravings. Just published.

53. GOODRICH'S SCHOOL GEOGRAPHY AND ATLAS.

54. CONVERSATIONS ON THE EVIDENCES OF CHRISTIANITY. By Rev. J. L. Blake.

55. WANOSTROCHT'S FRENCH GRAMMAR.

56. SURAULT'S Do. for beginners.

57. HENTZ'S FRENCH READER.

58. BOSSUT'S FRENCH WORD AND PHRASE BOOK,

59. LA BAGATELLE, or EASY LESSONS IN FRENCH.

65. HISTORY OF THE U. S. IN FRENCH.

*** *The foregoing Works are all published in Boston. Orders received by* CARTER, HENDEE & Co. *They may also be had of Collins and Hannay, New York; J. Grigg, and Kay & Co., Philadelphia; McDowall & Son, Baltimore; Odiorne & Smith, Mobile; Morton & Smith, Louisville, Ken.; Hubbard & Edmands, Drake & Co., and E. H. Flint, Cincinnati; O. Steele and W. C. Little, Albany; Sanxay & Street, Richmond, Va.; Purse & Stiles, Savannah, Geo.; Eichbaum & Norvell, Nashville, Tenn.; Parsons & Phelps, Rochester, N. Y., and of most Booksellers in the U. States.*

FAMILY LYCEUM.

(*Extra.*)

JOSIAH HOLBROOK, EDITOR.

PUBLISHED AT NO. THREE, CORNHILL.

FAMILY LYCEUM.

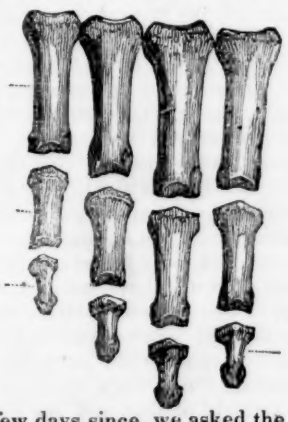
What individual is fully acquainted with himself? Not one. How few are acquainted with the structure, the operations, or the uses of a single limb? Is there one person in ten, even in New England, who knows the number of bones he has in his hand? Is there half that number who can tell how those bones are moved, or name a muscle which moves them? Is not the number still smaller who have even a general knowledge of the mechanism or operations of their whole frame?

Where can the person be found, who knows the powers and the weaknesses of his own mind? Who ever saw the man that had a perfect view of the propensities, the prejudices, and the workings of his own heart? How few even begin to form an acquaintance with themselves? Does not almost every person need to be introduced to himself?

Under a view of the vast importance and great difficulty of self-knowledge, we have directed a feeble aim, in nearly every number of the Family Lyceum, to some department of that subject. The physical, intellectual, and moral powers of man have received a share of attention, with their relation and action upon each other. The moral powers we have considered the foundation of the whole, and the object of the whole. The moral universe we believe to be the object of the whole universe, and the *whole* object of the universe. For what other object was our earth created, but for the accommodation of moral beings? Of what other use are the fishes of the sea, the fowls of the air, and the cattle upon a thousand hills, except for the accommodation of moral and immortal beings? Why do the sun, moon, and stars give their light, or the planets perform their annual or daily motions?

As one mode of leading our readers to form an acquaintance with themselves, we have given, and design still to give, descriptions and illustrations of our mechanical structure. And as there is, perhaps, no part of the human frame more curious, more useful, or less understood than the hand, we here present some illustrations of that wonderful piece of workmanship, of that striking display of Divine wisdom, power and benevolence.

THE FINGER BONES.



A few days since, we asked the children of a primary school if they could tell how many bones they had in one finger? The question brought a smile upon every face, and every eye upon their hands: and after a variety of answers, they all came to the conclusion that they had three. This conclusion prepared them to tell how many they had in two, three, and four fingers.

On being asked, which was the most, four times three, or three times four, some thought one, and some the other. But after finding, by the bones and joints of their fingers, that three times four and four times three were each twelve, they settled upon the opinion that they were both the same, which was to them an interesting and an important discovery.

By asking how many bones they had in their hands, between their fingers and wrists, they were furnished with another lesson, and some further knowledge, both of numbers and of animal mechanics.

METACARPAL BONES.

These bones, which anatomists call metacarpal bones, are five in number, and are designed to connect the thumb and fingers with the wrist. They are a little separated from each other, where they unite with the fingers, and by that means give to the fingers a free play. In the cut above, the metacarpal bone of the thumb is not represented.

THE HAND.

Here are seen all the bones of the hand, of which there are nineteen, moving on the same number of joints. What a compact little machine it is! and yet how free in its motions!

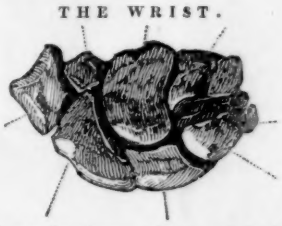
These cuts, however, represent only the frame work of the hand: by others it may be seen, that this frame is connected by a curious and beautiful set of cordage, called the muscles and tendons.

This ingenious and useful little instrument is also fitted up with nerves, veins, and arteries, all wrought in together, so as to give it strength, feeling and life, and at the same time to give it greater freedom and ease of motion, than can be found, perhaps, in any other machine which has ever been constructed.

Then there are the nails upon the fingers; how convenient they are. How should we pick up a pin or a needle, a piece of paper or thread without them? How should we open a penknife, or square the nibs of our pens?

Is not this little machine, the hand, more curious and more useful than a steam engine? Besides the frame and cordage, the bones and muscles, tendons, nerves, veins and arteries, composing the mechanical construction of this curious instrument, it has the still more remarkable character, of moving itself. Try and see how many motions the hand can make. It can move at the wrist without any other motion. So it can at the knuckle joints, and at the joints in the middle of the fingers. The thumb, or either finger can move while all the rest of the hand remains still. The whole hand, and each finger can move back and forth. The fingers can spread themselves apart, and come together again. The hand can shut itself with a firm gripe, and then throw itself open. It can move a pen and a heavy beetle; a penknife and an axe. The operations and uses of this constant living witness of Divine power and goodness, are too numerous and too diversified to be named or imagined.

THE WRIST.



In the wrist (*carpus*) are eight bones, arranged in two rows, closely packed, and strongly bound by ligaments, or cords. Each of the eight will be given with a description in the future numbers of the Lyceum.

The wrist bones have a gentle motion on each other, and on the fingers; also with the bones of the arm, and thus form an intimate and powerful connection between the arm and the hand.

ARM AND HAND.

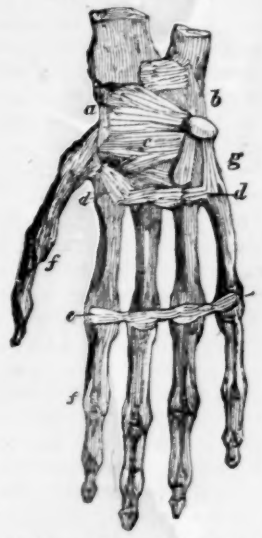
In the hand, wrist and arm are thirty bones. That between the shoulder and elbow is called the shoulder bone; the one between the elbow and thumb, the radius; that between the elbow and little finger, the ulna; the wrist is called carpus; and the bones between the wrist and fingers, the metacarpal bones.

If the mechanism of the hand already referred to, is curious and wonderful, it is still more so in its connection with the arm. It will be seen by the cuts and explanations, which follow, that the hand receives its power from the muscles of the arm. Of course to understand fully either the mechanism or the uses of the hand, its connection with the arm must be understood as here presented.

CARTILAGE.

All the joints of the animal machines are most commodiously furnished with singular and curious cushions, so strong and so elastic as to keep the bones from rubbing or striking against each other. The substance composing these cushions is called cartilage, more commonly known by the name of gristle, and is good in soups. For joints or bones which bend or yield a good deal, a large quantity of cartilage is provided, and is particularly useful in running and jumping, when the bones would be often broken, except for this wise and benevolent provision of our Creator. In young animals, and especially in children, a great part of the frame work of the body is cartilage, which afterwards becomes bone.

LIGAMENTS.



By a look at this cut, it will be seen that the bones of the wrist and hand are strongly bound together. The cords which bind the bones together are flexible, elastic fibres, intimately and curiously interwoven, and are called ligaments. These ligaments are of several different kinds, and are so formed as to surround the joints, pass in between them, and firmly unite the bones which form them. The bones of the wrist are not only so curiously and compactly wedged in with each other, as to form a compact mass, and take a strong hold, both of the arm and hand, but they are made still stronger by the cordage or ligaments passing in various directions around them.

MUSCLES.

That part of animals, commonly called flesh, such as beef-steak, or mutton-ham, anatomists call muscle. This substance constitutes the principal covering of the animal frame, and gives to animals all their strength. Without them, quadrupeds would be unable to run or walk; birds or insects to fly; fishes to swim, or reptiles to creep. Those frames of bones, so wisely and wonderfully united by cushions and cordage, (cartilage and ligaments), would still be but mere frames without motion, or the power of moving, and without life.

Every creature in the animal kingdom, from the musqueto to the elephant, and from the microscopic animal to the whale, has all his strength from a certain property or power peculiar to muscle, but extending to all muscle. It is the power of contracting, or drawing itself up into a smaller compass or size, as a sponge is pressed together by the hand.

By this contractile power of all muscular substance, when life is connected with it, the bones, or frame of the animal, which are so many levers, are put in motion. Every bone or lever, has several muscles attached to it, to move it in different directions. The extremities of the muscles, or those parts which are joined to the bones, are small, but strong, and are called tendons, more commonly known by the name of whitleather. Since all the motions of every limb and every organ are produced only by the muscles and tendons, it is evident that the muscles in the human frame must be exceeding numerous: and since no two of them often, if ever, interfere, they must be most ingeniously arranged and interlaid, to bring so many into so small a compass, and to give to all a free play and their necessary power.

Some of the muscles in the arm are shown in figure 6. The muscle *a* turns the radius and hand inward; the muscle *b* binds the wrist; *g* also binds the wrist and draws the hand upward. All the other muscles here represented give to the hand and arm their appropriate motions, but cannot now be described.

FIG. 7.

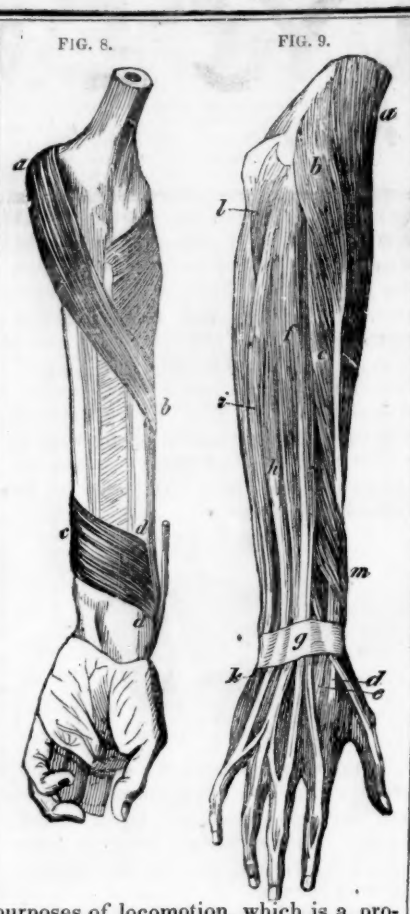
This figure shows some of the muscles and tendons which move the fingers. The tendons run under the ligament of the wrist, where they diverge, to go to their respective fingers, and when they arrive at the end of the upper bones in the fingers, they split for other tendons to pass through, as may be seen at *g*. They act upon the second or middle row (phalanx) of bones. Another set of tendons act upon the third row, or phalanx, or extremities of the fingers.

Muscle *e, d, d*, represented in figure 8, is called the quadrangular muscle, from its shape. It turns the radius and hand inward.

The muscle *f*, shown in figure 9, opens the hand and bends it backward upon the fore arm. The muscle *h* extends the little finger, and assists in bending back the hand. The muscle *i*, brings the hand backward, and inclines it towards the ulna.

The muscles here pointed out, though but few when compared with all in the human frame, are sufficient to show their connection with the bones, and the manner in which they move them, so as to answer the great and numerous

FIG. 8. FIG. 9.



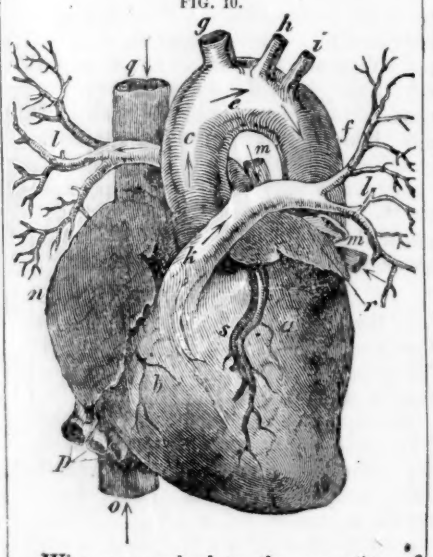
purposes of locomotion, which is a prominent and distinguishing feature of the animal creation; as all animals have the power of moving themselves, and vegetables and minerals move only as they are moved.

It will be seen by examining the first number of the Family Lyceum, that the contraction of muscles is there mentioned as the source of all animal strength, whether in the faithful horse, the patient ox, or the ambitious man. Consequently, if He who created the muscular fibre, and gave it that curious and wonderful power of contraction, should destroy that power, the whole animal creation, which now gives animation and beauty to ocean, earth and air, would be but another kingdom of vegetables, without motion, except when moved by the winds or the lightning of heaven, or tossed upon the waves of the sea.

Nor is the contractile power of the muscles the only circumstance relating to them which makes a beautiful display of the power and goodness of God, and calls for the gratitude and service of man. The mysterious and wonderful control of the will over the muscles, to move them in the direction, and almost with the force it may choose, is a still further display of the economy, wisdom, and benevolence of the Divine Original of all things.

THE HEART.

FIG. 10.



Who can calculate the quantity of blood, or the distance of its motion, which circulates every moment to the animal kingdom, in appropriate vessels furnished by our Creator? Who has not some curiosity or desire to know something of the machinery which is so contrived and constructed as to send to the extreme points of our fingers and all our limbs, and to the extremities of all the limbs of a great part of the animal creation, a supply of blood, which continues to them life, activity and happiness?

It is well known that the principal engine, which keeps in motion so many thousand streams of blood, as give health, vigor and happiness to the animal creation, is the heart. It is divided into four apartments, called the right and left auricles, and right and left ventricles. By the great contractile power of the latter, the blood is forced into the arteries and circulated through the system.

Payley says, that the aorta of a whale is a foot in diameter, and that, by the contractile power of the heart, it throws off ten or fifteen gallons every stroke, with about a hundred thousand strokes in a day, or four thousand strokes a minute. The heart of the whale, anatomists say, has more power than the machine of the London water-works.

ARTERIES.

FIG. 11.

Though the heart is the principal working engine for sustaining animal life by a circulation of blood, the arteries and veins are the conducting vessels for transmitting it into all parts and to the utmost extremities of every animal form; the former taking it from the heart, and the latter returning it.

The arteries may be seen in the two last figures, which are those of the heart and the arm. The great artery of the heart is seen at *f, e, c*, and is supplied with numerous branches which carry the blood into all the smaller vessels for supplying the arms and every limb and organ in the system, and the extremity of each.

From the aorta proceed innumerable other vessels of various dimensions, which carry the blood with great velocity, to the end of every finger, and the extremities of every part of our bodies.

When thus diffused by means of the arteries, the blood is transferred into the veins which conduct it to the heart, whence it is again sent out, to perform another, and another, and still another round to impart life and invigorate power.

BONES OF THE TOES.

FIG. 12. FIG. 13.

THE FOOT.

FIG. 14.

By this cut, it will be seen that the structure of the foot is much like that of the hand. The toes, like the fingers and thumb, contain fourteen bones, or three in each, except the great toe, which has two. The bones between the toes and ancle resemble those between the fingers and wrist, as will be seen by comparing the prints of each. The foot is also applied to many of the uses of the hand, by persons without hands.

How wonderful the structure! how beautiful the uniformity in our Creator's works, which declare, in a voice that cannot be misunderstood, and ought not to be disobeyed, that he is a God, all-powerful, all-wise, and all-benevolent!

INTELLECT.

If the human frame, including the bones, muscles, tendons, cartilages, arteries, &c, is the most curious and wonderful machine ever constructed, even by a divine hand, the intellect which directs this machine at pleasure, bears still more strongly the marks of divine wisdom, power and benevolence. How animating, how glorious the thought, that our Creator has placed our physical machine, so curiously and wonderfully formed, under an intelligence which by it, can, not only fit means to ends, but can direct all other machines, and all beings, in the animal creation, and can even command the elements, and render them subservient to its purposes. By the intelligence of man, the most powerful animals of land and sea are subjected to his use, and earth, air, fire and water, become his faithful servants. How glorious the architecture! how much more glorious the architect!

MORALS.

Abused or misguided intellect, has ruined our world. It has shed oceans of blood, and changed the most exalted and glorious works of our Creator, into one vast heap of ruins—*intellectual and moral ruins*. It has raised the hand

of the father against the son, and the daughter against the mother. It has produced wars, fightings, strifes, contentions, disease, poverty and death, and overspread our otherwise cheerful and happy world with one general badge of mourning.

If such are the results of unguided or misdirected intellect, why not put it under the control of that power which was made to *guide* it? Why not give moral power, a sense of *right* and *wrong*, the direction of this beautiful machine — this beautiful piece of frame work, so curiously interlaced with cordage of a thousand forms, and running in as many directions, rendered still more worthy of its author by the addition of our intellect to put in motion and to direct it, for evil or for good?

If the question, IS IT RIGHT? should at all times stand out in golden letters before the intellect, and should always be permitted to give direction to the intellect, and through that to the physical machinery, how exalted, how happy would be each individual, how glorious, how worthy the author of the intellectual and moral creation? Who is not willing — we are rather compelled to say, who is willing to try the experiment?

BOTANY.

THE WHITE OAK.

During the present season it is our intention to describe the structure, the properties and the uses of various productions in the vegetable kingdom. In making our selection we shall aim at the useful rather than the rare. We shall hence give a description of wheat, Indian corn, rye, buck-wheat, some of the grasses, the potato, the fruit trees and forest trees. For the last we recommend Brown's American Sylva.

Among the latter the white oak holds the first place in the first rank. It is probably applied to more uses than any other vegetable upon the earth. It is used for ships, houses, carriages, farming utensils, fences, casks, fuel and innumerable other purposes, and is excellent for all.

Besides the white oak, more than forty other kinds grow in America, most, or all of which, with our numerous fruit trees and shrubs, will be described in the Lyceum during the season, with a hope of leading some of our readers, especially the members of schools, to examine this interesting department of nature in their walks and rambles, while it is clad in its most beautiful garment of green.

GEOLOGY.

ROCKS.

Who would suppose that no more than twenty or thirty kinds of rock were found upon our earth? And who would not like to know their names, ingredients, localities, properties and uses, when the whole is so easy, and at the same time so useful and so interesting? This we shall endeavor to enable every reader of the Lyceum to do, during the next six months.

METEORALOGY.

In our first number we suggested the plan of comparing tables of the weather, which were or might be kept in various parts of our country, and in opposite places upon the globe; and we are gratified to find that the proposal has so far met the approbation of editors and other patrons of knowledge in several of the states, as to lead them, not only to give their own tables to the public, but to compare those of different places. The circumstance that several Female Seminaries and other literary institutions have kept and forwarded them for our columns, and through them for the public, demands our thanks, which we cheerfully render. We hope that every school will, at least keep an account of the clear and rainy days during the coming year, commencing on May Day, and that we shall be enabled so to present them in our columns, that all may see how far the sun is partial in imparting its unclouded rays.

COÖPERATION OF SCHOOLS.

Which of the fifty thousand schools in the United States would not like to hold a correspondence with the rest? If there is one which would not, we must for the present omit addressing it. To all who would like to form an acquaintance with each other we have a proposal to make. The proposal is to have the members of each examine and collect specimens of their CREATOR'S WORKS, which are scattered around them, such as minerals and plants, and to exchange with each other, which we will endeavor to put them in a way to do when they have made their collections. And if they will keep journals of the weather we shall be glad to publish them in the Lyceum, so that each can see the climate and weather of the rest.

OUR PLAN.

In one respect the plan of the Family Lyceum differs from all other Journals. It aims to give systematic treatises on the various sciences, in short but connected essays, from week to week, so that by a regular perusal of its columns a person may acquire a systematic knowledge of some of the most useful subjects, without the trouble and expense of giving to them his whole time. Such a course, while it is almost without expense, brings to its aid the daily conversation of the table, fireside and social circle, and thus while science enlivens the family circle, the circle embodies and applies the science.

We also design to render our sheet a general correspondent between Lyceums and schools in all parts of the country. From the extensive circulation it has already, teachers and schools make it a medium of correspondence with each other, on various subjects of science, and on the different modes of teaching. It also keeps up a correspondence and a most healthful action between families and schools, and by that means secures to *teachers* the *coöperation of parents*.

OUR PRICE.

Those who compare our sheet with an advertising newspaper, naturally conclude that the price is high. If they should compare it with any monthly or quarterly periodical, they must conclude that it is low. When they know that the advertisements of many papers more than pay their expense, and that the cuts and various extra provisions for the Lyceum nearly double the expense of that, they must conclude that it could not be for the interest of the readers for the proprietors to attempt to furnish it at a lower rate.

We are led to these remarks from hearing it mentioned several times that the only objection to the Lyceum was its price.

SCHOOL AGENT SOCIETY.

Fifteen agents are engaged by the School agent Society, to attend education conventions, to consist of teachers, parents, and children, in New England and New York, during the months of May and June next. Their particular object is to exhibit improvements and propose measures for the special benefit of summer schools soon to commence for the season. As these schools are almost exclusively taught by ladies, and as it is highly important that every teacher should have an opportunity to witness the explanations of various modes of teaching proposed to be given by the agents, some friend of every school may confer a favor upon each of its members, and upon the cause of education generally, by providing their teacher with the means of attending some one of the conventions proposed.

The best mode of teaching the alphabet, spelling, reading, composition, Geography, Geometry, and Geology will be explained and illustrated by apparatus and specimens, in such a way that every teacher or parent who witnesses them can use them immediately for the benefit of their pupils or children.

The agents will also explain the manner in which a Ladies' Lyceum may be conducted in every town and village in the country, so as to afford entertainment and instruction to its members, effect an immediate improvement in all their schools, promote the general cause of education, and advance other objects of extended benevolence.

They will also explain the plan of circuit schools or improved Lyceums, and show their importance for new and thinly settled countries, and for the darkest places on our globe, as well as for the most compact and enlightened American villages.

Plans, or constitutions, will be presented to the Conventions for County and town Lyceums, where they are not already organized, by which the great objects of an *enlightened* and *universal education* can be most permanently and effectually secured.

As it is the wish of the School Agent Society to support one or more general and permanent agents for this country, especially for the west and south, and to aid in the support of several foreign agents, or itinerating teachers, (several may probably be engaged immediately) benevolent and enlightened individuals who may attend the proposed conventions, are invited to make collections for the agents who may render their aid in behalf of the Society.

As no measure hitherto adopted for the advancement of *common education*, has produced results so numerous, so important, or so immediate as school conventions, the friends of education in all parts of the country, especially in N. England and N. York, are respectfully invited to interest themselves in the proposed conventions, at least so far as to provide their teachers with the necessary facilities for attending them.

Any inquiries or other communications will be duly attended to, if directed to

JOSIAH HOLBROOK, Boston,
First Cor. Secretary of Am. S. A. Soc.

FAMILY APPARATUS.

When children are furnished with the "intellectual Toys," they learn the alphabet, reading, writing, geography, geometry, and several other things in the same way that they learn the names and uses of various common objects around them; that is, of themselves, and from their own choice. These toys also greatly increase the happiness of children, keep them from dangerous instruments, relieve mothers from much anxiety, and avoid many losses from the mischief of their innocent but troublesome children.

Many parents who have procured the Family apparatus have asserted that their children learnt the alphabet, and learnt to read almost entirely of themselves. Several have said that it was a great source of instruction to themselves as well as their children, and a number have asserted that the toys paid for themselves in the crockery they saved from the experiments of their children.

The family apparatus gives children a great interest in their schools, and is particularly applicable in connection with circuit schools, and will even answer a valuable purpose as a substitute for schools in families which cannot enjoy them.

SCHOOL APPARATUS.

The HOLBROOK ASSOCIATION OF TEACHERS, Teachers' Seminary, Andover, after a full discussion of the subject, voted *unanimously*, that they did not consider any person qualified for a school teacher, who was not acquainted with the uses of the school apparatus and the principles it is intended to illustrate.

The use of apparatus in schools has been unanimously recommended by more than forty conventions of teachers, at which were present from twelve to fifteen hundred teachers.

Experience has proved that the introduction of apparatus into a school, never fails to introduce various improvements, calculated to change and elevate its character.

Whenever a LADIES' LYCEUM, or a single Lady, has invited the female teachers of her town or village to meet each other, and has proposed to them to request their pupils to contribute twenty five cents each, to procure an apparatus, their schools have been furnished, and every child benefited.

Query. In what way can a lady, or a few ladies, do so much for the cause of education, or of human happiness?

SCHOOL CABINETS.

Any school which will procure twenty elementary specimens in Geology and a tract or some small treatise on the subject will be enabled and induced to collect, label and arrange a cabinet of Natural History for themselves.

HALL'S LECTURES TO SCHOOL TEACHERS.

We hope that the pupils of every school in the Union will present their teacher with a copy of Hall's Lectures, as the surest way to improve their minds and enlarge their hearts.

PAXTON'S ANATOMY.

By the kindness of Messrs Carter, Hendee & Co. we have been permitted to use their cuts for Paxton's Anatomy to procure stereotypes for our paper, and think the work worthy a place in every family.

LADIES' LYCEUMS.

Besides doing more for the 40 or 50,000 elementary schools which are to be in operation during the present season, than can be done by any other means, ladies who may associate for that purpose in our towns and villages may provide for themselves, and for misses and young ladies who do not attend school, much instruction and entertainment.

For the purpose of aiding such associations of ladies at their meetings and in their families, the Family Lyceum will contain such subjects presented in such a way, during the coming summer, as will be designed to promote this republican and benevolent object.

SCHOOL LIBRARIES.

A series of juvenile books are in progress under the direction of the Editor of the Lyceum, designed to answer the same purpose in common schools that Sabbath school libraries do in that department of instruction. Several volumes are expected to be out in June next.

NATIONAL CABINET.

If schools and Lyceums were generally furnished with minerals and other specimens of Natural History, they might form immediately a National Cabinet at New York, to be used by the NATIONAL LYCEUM for a system of exchanges and general distribution among the towns and villages in our country.

ONE CENT AND 50,000 LIBRARIES.

If each of the four million of American children should contribute one cent every Monday morning, it would be sufficient to provide every school in the Union with a valuable and constantly increasing library.

A REQUEST.

Those who may receive this sheet are invited to show it to their neighbors, and, if convenient, to invite a meeting of teachers in the town or county where they reside, to lay before them the system of measures now in operation for the advancement of *common education*.

TO CLERGYMEN.

As no class of the community are able or disposed to do so much for *universal education* as the clergy of all denominations, we hope and believe that they will give to the system of measures now in progress by the coöperation of Lyceums and the School Agent Society, their approbation and their efforts.

TO EDITORS.

If American Editors should give to common education one half of the thought, energy, and perseverance which they give to politics, the blessings of intellectual and moral instruction might be carried to every child in America during the coming summer.

ECONOMY.

Every enlightened Christian community, since the creation of the world, has had political and pecuniary prosperity. Commodious churches and school houses always produce commodious dwellings, well cultivated farms, convenient vehicles and good roads.

Five dollars expended upon infant schools, always prevents more poverty and crime than five thousand spent on prisons, courts, and other legal provisions to protect the morals of a community.

Two dollars will provide a year's entertainment and instruction at a Lyceum; from three to ten dollars will furnish one evening's entertainment at a ball.

Commodious LYCEUM BUILDINGS have generally paid from one to two hundred per cent interest on the money they cost.

The expenses of horse racing in the U. States for one year is sufficient to erect an elegant Lyceum in every town and village in the Union.

The interest of the money expended for the Pennsylvania State prison is sufficient to pay the tuition of ten thousand children at infant schools.

The money annually expended for military trainings in Massachusetts is sufficient to establish and endow a LYCEUM SEMINARY, or self supporting school in every county in the State, at thirty thousand dollars each.

FACTS.

Four millions of Children in the U. States are the proper subjects of school education.

One cent from each of these children would amount to 40,000 dollars, and would furnish every teacher with a copy of Hall's Lectures. A teacher has seldom, if ever, read Hall's Lectures on school keeping, without greatly increasing the value of his or her instructions.

Twentyfive cents each from all the American children, would amount to one million of dollars, and would furnish every school in the Union with a set of school apparatus.

Lyceums always diminish the expenses of towns and villages where they are established, by taking the place of expensive amusements, and increase wealth by promoting industry and economy.

A number of schools in several different states have exchanged specimens in Natural History, and by means of the Family Lyceum, have corresponded with each other, greatly to the interest and improvement of all concerned.

The NATIONAL LYCEUM have invited every society engaged in the Lyceum system, whether Juvenile, town, county, or State Lyceums, to send collections to N. York, that they may be exchanged and distributed into all parts of the Union.

BACK NUMBERS.

On account of the connected series of essays on various subjects in the Lyceum, it is desirable that the subscribers should have all the numbers from the commencement, which may be furnished for a few weeks longer.

PRICES.

The Family Apparatus is $5 a set. School sets $10. For Lyceums and Academies, Chemicals, $25; Philosophicals, $15; Astronomicals, $20; Family Cabinets, $1; School Cabinets, $3; Lyceum Cabinets, $5; Family Lyceum, $2; 3 copies for $5, payable in advance, which may be procured by orders and remitances sent to the editor of the Family Lyceum, Messrs Allen & Ticknor, or Carter, Hendee & Co.

ELEMENTARY BOOKS.—[Among the duties of the guardians of public education, it is one thing to provide the ways and means in support of the cause; another to obtain competent teachers; and last, to furnish them, as you would the mechanic or the artist, if you would expect the best result from their labors, with proper *tools*, and *materials*, that is to say, with the best books and with the necessary apparatus for illustration. Money lavished on incompetent instructors and in the purchase of inferior books, is not only lost, but that time which is the most precious to the young for improvement, is gone and cannot be redeemed.

The following list of elementary works, on the subjects most usually taught in common and high schools, it is believed will be found worthy the attention of School Agents, Committees, and Instructers.]

LIST
OF APPROVED
SCHOOL BOOKS.

1. A Series of Introductory School books, by H. L. Barnum, just published, viz:—

The Child's First Book of Spelling and Reading; with sixtyseven engravings.

The Child's Second Book of Spelling and Reading, connected with the Elements of *Writing*; with fifty five engravings.

The Child's Third Book of Spelling, Reading and Writing, connected with *Numeration* and *Mensuration*: with Maps and Engravings. Being an easy introduction to *Arithmetic* and *Geography*.

First Book of Geography, connected with Spelling, Reading and Writing. Illustrated by thirty Maps, and many beautiful Engravings.

The Author's leading principle is *association*; imparting ideas in the most natural and expeditious manner, by representations of visible familiar objects. The system begins with the most simple words in the English Language, and progresses step by step to the higher branches of study, keeping up a constant *review* of the matter in each preceding book. Much could be said upon the peculiar merits of these books, were it necessary. They are cheap, interesting, and inviting to the eye. It is designed to attract attention, elicit thought, engage curiosity, encourage inquiry, and excite reflection, upon natural principles.

2. The National Spelling-Book. By B. D. Emerson, Late Principal of the Adams Grammar School, Boston.

The improvements claimed for this, over most other Spelling-Books, are:—1. That it precisely points out the pronunciation *of each syllable, in every word*, according to Walker's principles;—2. That it is on a plan easily comprehended by the learner, and *without the incumbrance of numerous marks and characters*, which are so objectionable;—3. That it contains more matter, in the same number of pages, and in the same liberal type;—4. That the classification and arrangement are better suited to the *progressive* improvement of learners, and peculiarly adapted to the exercises of monitorial teaching.

This work is used exclusively in all the Public Schools of Boston. It is also approved and used in New York, Philadelphia, Baltimore, and in the Southern and Western States.

*** An Introduction to this work, on the same plan, designed for very young children, and for primary schools, has recently been published by the same author.

3. Worcester's Second Book for Reading and Spelling.

Those who have used Mr Worcester's Primer are aware of his peculiar talents in rendering those usually 'dry subjects' interesting to children, and to them it is sufficient to say that the *Second Book* has the same simple and attractive character as the first.

4. A Third Book for Reading and Spelling; with Simple Rules and Instructions for avoiding Common Errors. By Samuel Worcester.

The plan and character of this work is different from any other now in use; each lesson is preceded by a Rule and a list of Errors—and the Reading is designed to be rendered not merely an exercise but a study, requiring much time and attention. We approve of the plan of this Book—it is just such an one as is needed—and we hope it will be adopted in every school in the country.—[Boston Evening Gazette.

5. Series of READING BOOKS, by Rev. John Pierpont, viz:—

The Young Reader; to go with the Spelling-Book. Embellished with numerous cuts.

Introduction to the National Reader. A selection of Easy Lessons, designed to fill the same place in the common Schools of the U. S. that is held by Murray's Introduction and the compilations of Guy, Mylius, and Pinnock, in those of Great Britain.

The National Reader; Being a selection of exercises in Reading and Speaking, designed to fill the same place in the Schools of the United States that is held in those of Great Britain by the compilations of Murray, Scott, Enfield, &c.

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The three last of these books are used exclusively in the Boston Public Schools; have obtained an extensive circulation in the United States; and have been republished with favorable notices in England. The following are extracts from foreign papers.

"All interested in the education of youth must feel highly indebted to Mr Barker for his reprint of that excellent and popular school book—*The National Reader.*"—Cambridge (England) Press.

"We hesitate not to say the National Reader is a most valuable manual of school literature."—Sheffield (Eng.) Iris.

"In all respects we believe that it is superior to most of the collections now in this country."—Aberdeen (Scot.) Observer.

6. The Easy Reader. Designed to be used in the next course after the Spelling Book, in Schools and Families. By John Frost. Second Edition, with a few additional Lessons.

7. Smith's Arithmetic. Practical and Mental Arithmetic, on a new plan, in which Mental Arithmetic is combined with the use of the Slate, containing a complete system, in federal Money. To which is added a Practical System of Book-keeping. By Roswell C. Smith.

This work is strictly on the Pestalozzian plan, adopting no rule without a previous developement of its truth. *Blocks*, illustrating the Cube Root have been prepared to accompany the work.

The following are a few of the prominent characteristics of this work.

1. The interrogative system is generally adopted throughout this work.

2. The common rules of Arithmetic are exhibited so as to correspond with the occurrences in actual business. Under this head is reckoned the application of Ratio to practical purposes, Fellowship, &c.

3. There is a constant recapitulation of the subject attended to, styled, "Questions on the foregoing."

4. The mode of giving the individual results without points, then the aggregate of these results, with points, for an answer, by which the relative value of the whole is determined, thus furnishing a complete test of the knowledge of the pupil.

5. A new rule for calculating interest.

6. The mode of introducing and conducting the subject of Proportion.

7. The adoption of the federal coin, to the exclusion of sterling money, except by itself.

These are some of the predominant traits of this work. Others might be mentioned, but, by the examination of these, the reader will be qualified to decide on their comparative value.

The Block, illustrative of the rule for the Cube Root, will satisfactorily account for many results in other rules; as, for instance, in Decimals, Mensuration, &c, which the pupil, by any other means, might fail to perceive.

Notice of this work from the Journal of Education.

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8. Smith's Introductory Arithmetic. The "Little Federal Calculator," calculated to employ the mind and fingers only, and designed particularly to go before the slate, and to prepare for it. By R. C. Smith.

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This Arithmetic has passed through at least twenty editions, and is now generally used as the standard Mercantile Arithmetic in New England.

It may be used in Schools as a sequel to Smith's and other popular treatises on mental Arithmetic.

10. Elements of English Grammar, with Exercises in Parsing. By John Frost.

This work is noticed as follows by the Boston Association of Instructers.—"We have attentively examined your Grammar, and we do not hesitate to say that it appears to us better adapted to the younger classes in common schools, than any other work with which we are acquainted."

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"The extracts are short, possessed of force and spirit, of unquestionable moral tendency, characterised by fine style and good taste, and each conveying a complete sense, intelligible to an audience, without note or title. It is plain that a youth may enter fully into the spirit of *such* pieces, which he cannot do where these requisites are wanting."—*Education Reporter.*

"We have looked with no ordinary degree of satisfaction at this volume. * * * We heartily commend the Academical Speaker to parents and teachers, as a work suited to the wants of schools and families—one, which will aid the business of *thinking* as well as reading."—*Phil. U. S. Gaz.*

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It has been proposed in the Legislature of Massachusetts to order by law, its introduction into all the public schools of the State.

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"It is just what was wanted to convince boys of the value of the science they are pursuing, and to cheer them in the pursuit."

This work, though prepared originally for common Schools, has recently been introduced as a text book in Harvard University.

17. Elements of Natural Philosophy, with Practical Exercises. By F. J. Grund.

In the following treatise, the author has made an attempt to supply a suitable work on Natural Philosophy for Schools. It is divided into ten chapters, treating separately upon the General Properties of Matter, of the Phenomena of Cohesion and Adhesion, of the Laws of Motion, of Hydrostatics and Ærostatics, of the Mechanical Powers of the Atmosphere, of Heat, Light, Electricity, Galvanism, and Magnetism. Each chapter is again divided into sections, which are numbered, and consist of short sentences, for the sake of being more easily referred to, and to assist the memory of young pupils.

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This work is intended to be a complete school teacher's *manual*, and contains all the necessary *practical directions* for their observance in the instruction and government of schools.

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We have examined the book with attention, and recommend it as an excellent text book for Schools. —[Boston Evening Transcript.

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